THE IRON TRADE REVIEW

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HEAVY BUYING

CONTINUES IN THE PIG IRON MARKET.

Varied Views as to Extent of Speculation—Coke Demand Improves—Better Feeling but Not Much Business in Finished Lines.

Great activity continues in the pig iron market, with an immense volume of inquiry and many sales of moderate tonnage aggregating a large total. Following the heavy buying of large interests, smaller consumers in large numbers have come into the market, and orders have been freely placed. There is, of course, some difference of opinion as to whether this buying movement is justified by industrial conditions, and it is unquestionably true that there is considerable placing of orders in anticipation of increased business without positive evidence that such increase will be realized. In some quarters, pessimistic comments are being made, and it is predicted that dullness will soon return. On the contrary, there is substantial evidence from many quarters of increased melt, and there is a better feeling throughout the country. Sentiment is certainly doing its share and may have a powerful influence in averting a return to conditions which characterized the period of depression. Among the sales reported during the week are: Tennessee Coal, Iron & Railway Co., 20,000 tons; the Northwestern Iron Co., 20,000 tons; Woodward furnaces, 12,000 tons; Matthew, Addy & Co., 12,000 tons; Sloss-Sheffield Steel & Iron Co., 6,000 tons; Republic Iron & Steel Co., 6,000 tons; Iroquois Furnace Co., 9,000 tons. The leading pump interest has purchased 8,000 tons, and is inquiring for 4,000 tons more. A large part of the iron sold last week by southern interests was at $11, Birmingham, but $11.50 now seems to be the bottom price, and several large interests have advanced to $12. In the north, there has been considerable activity in basic, and some interests have advanced to $16 valley, which is about $1 above recent quotations.

Slow Ore Movement

Ore shipments from the Lake Superior ranges are proceeding very slowly. The total movement up to June 1 will be less than 200,000 tons, a loss of 6,000,000 tons, compared with the same period last year. Rumors of ore being sold at less than the regular prices have been frequently heard of late, and it is probably true that some reselling of ore may be done at concessions by furnace interests, but the leading sellers are acting in absolute harmony and are firm in the decision to close their mines rather than sell at lower prices. A few small sales have been made at the regular schedule.

Coke is Stronger

Improvement in the coke market continues. Several furnaces have contracted for their requirements for the last half of the year, and others are in the market. There is also some improvement in demand for foundry coke, especially at Chicago and St. Louis.

Finished Material

In finished materials the market has, on the whole, been quiet, but there is some improvement in sentiment, and owing to the reaffirmation of prices with no prospect of another New York meeting being held at any time in the near future, it is believed that buying will slowly improve. There is now an open market in bar iron in the east, but manufacturers are acting in harmony and improved conditions are expected to result.

Structural Material

The contract for 7,000 tons of sheet piling for the Black Rock ship canal harbor near Buffalo, has been taken by the Lackawanna Steel Co. in competition with two other interests. The McClintic-Marshall Construction Co. has been awarded the contract for the Pittsburg & Lake Erie railway bridge at Beaver, Pa., involving some 13,000 tons. About 4,500 tons of structural material has been contracted for in the Chicago district, and fair tonnages have been ordered in the central west and east.

LATE PITTSBURG NEWS.

(Special Telegram.)

Pittsburg, May 27.—The McClintic-Marshall Construction Co. has been awarded a contract to erect a bridge at Beaver, Pa., for the Pittsburg & Lake Erie railroad, involving about 13,000 to 14,000 tons. The same company has taken a contract for the Delaware & Lackawanna shops at Scranton, 4,000 tons.

A local plate glass company, operating a foundry, has closed for 6,000 tons of high silicon iron for Ford City, Pa., May, June and July, at $16 delivered. Freight rate from the valley is $1.10.

It is reported that the negotiations between the Columbia Oil & Gas Co., at Huntington, W. Va., and the National Tube Co. for 180 miles of 16 and 20-inch pipe have been consummated, but the report is not officially confirmed. Negotiations have been under way for some time.

The Washington Coal & Coke Co. has taken a contract from the United Iron & Steel Co. to furnish 150,000 tons of coking coal for the latter's plant at Leetonia, O. The latter company has just put in its Cherry Valley furnace.

According to a report made to General Mackenzie, chief of engineers for the federal government, if the United States Steel Corporation desires a harbor on Lake Michigan at Gary, Ind., it will have to build it itself.

THE WEEK IN IRON CENTERS

PITTSBURG.

Increasing Belief in Genuineness of Improvement in Pig Iron Markets.

Office of THE IRON TRADE REVIEW,
510 Park Bldg., May 26.

The pig iron situation at present continues to command the general interest in iron and steel lines. Inquiries calling for encouraging amounts are coming to sellers with regularity and a larger tonnage of iron in the aggregate than has been disposed of since last fall is being placed under contract. It is conservatively estimated that about 200,000 tons of northern and southern iron have been sold since the new note in the market was struck two weeks ago.

Increasing faith in the permanency of the improvement is being expressed by many furnace interests as the greater movement continues. It is felt that the market has touched its lowest point and that the recovery from this time on will be sure and steady. The presence of a large element of speculation in the present buying activity is, however, tending to raise some question as to its genuine strength. The prevailing low prices are especially inviting to melters of all classes and many of them are buying iron now with regard to providing favorable conditions for plant operations in the future. There are no clear evidences to be seen that the trade improvement among the foundries and iron and steel mills has been commensurate with the rather sudden display of life in the iron market. The true test of the situation will likely come with a rising market. There are present indications that this latter condition is not improbable, particularly in basic, where the increased demand and the conservative selling policy of the comparatively few producers is causing a stiffening effect upon prices. The foundry market, however, has gained little firmness.

Attributed both to the prevailing improvement in pig iron and the action of the general committee of iron and steel manufacturers in reaffirming prices, there is a better feeling in finished lines. The declaration of the committee that no meetings during the summer are regarded as necessary under present conditions is taken to imply a secure position for buyers at present prices during the next several months. This influence, it is hoped by the manufacturers will lead to more confidence in the market and to the replenishment in a limited way of present depleted stocks.

Pig Iron.—The increased demand for pig iron has been well maintained during the past week and considerable tonnage has been added to that already placed under contract. While there has been an absence of any very large inquiries or sales in the week, a more general interest in the market is being shown by melters, due likely to the spreading desire among consumers to take advantage of the present low prices. Inquiries have come from all sections and from many classes of buyers and in the aggregate the sales will likely exceed the total of the preceding week.

Due to the fact that it is so closely held, not more than four or five merchant furnaces in this territory being equipped to produce chill-cast iron, the basic market is stiffening. Some of the furnaces have practically withdrawn from the market, preferring to wait for higher prices. Sales of basic in this territory in the week have ben upwards of 10,000 tons, including 1,500 tons by one furnace to a valley consumer, and about 5,000 tons by another for this district. The price at which this tonnage was moved was a shade better than $15 valley. Another seller is reported to have disposed of 7,500 tons. The market at present ranges from $15.50 to $15.75 valley, and brokers are having trouble to purchase at less than the higher quotation. There are a number of inquiries pending, one for 6,000 tons, not to the Pittsburg district.

The foundry market is more active, but prices are no firmer. The Westinghouse Electric & Mfg. Co. took 600 tons of its own three grades for quick shipment at an average price of $14.50 valley, corresponding to No. 2, and is still in the market for from 1,000 to 2,000 tons for fourth quarter. A pipe and fixture manufacturer in this district bought 6,000 tons of foundry and malleable for four months delivery at an average price of approximately $15 valley. A local foundry interest also bought close to 1,000 tons. A glass company is inquiring for from 1,000 to 2,500 tons of foundry iron for its machinery plant. There is an inquiry out for 6,000 tons of malleable for New England.

The steel companies are taking no interest in Bessemer and the market remains at $16 valley with $17 asked for chill-cast. Forge is nominal at $14 valley.

The southern situation appears stronger. The Sloss-Sheffield Steel & Iron Co., which recently closed for a large tonnage, announced a new schedule this week based upon $12 Birmingham for No. 2. A northern Ohio melter closed in the week for a round tonnage of southern iron, this being in addition to purchases made the previous week.

Furnace operations have not been affected much as yet by the increased demand. Several furnaces have gone in, but these had been actively considering this step before the larger movement in iron appeared. Shenango No. 4 was put in this week on basic and Cherry Valley has resumed making foundry. After many conflicting reports, it is stated that Midland, which has been on basic, will go out the end of the present week. Girard, which was on foundry, has also gone out and the active list in the valleys now includes Shenango No. 3 and Youngstown Steel on Bessemer, Struthers and Dover on basic, Andrews & Hitchcock and Cherry Valley on foundry, and Stewart on low phosphorus. Basic and Bessemer stocks in the valleys declined 8,000 tons in the week of May 16 to 23, and are now at about 45,000 tons. On prompt and second quarter delivery on northern iron, the higher quotation on Bessemer being for chill-cast, we quote as follows:

Bessemer, valley	$16.00 to 17.00
Bessemer, Pittsburg	16.90 to 17.90
No. 1 foundry, Pittsburg	15.65 to 15.90
No. 2 foundry, Pittsburg	15.40 to 15.65
Gray forge, Pittsburg	14.90 to 15.15
Basic, valley	15.50 to 15.75
Basic, Pittsburg	16.40 to 16.65

Ferro-Manganese.—Prices in ferro-manganese continue to stiffen, and $44 Baltimore or $45.95 Pittsburg appears to be approximately the minimum of the going business. There is considerable buying for prompt and extended shipments, and we note the sale of 500 tons for delivery over the remainder of the year at about the quoted price. The inquiry is good, ranging from carloads to 250 tons. Ferro-silicon is quiet. Carload sales of ferro-manganese have been made in the week at lower figures, but we quote the general market on 80 per cent ferro-manganese for prompt and future shipment at $46 to $46.50 Pittsburg.

Imported 50 per cent ferro-silicon is

quoted $67 Pittsburg on forward deliveries; domestic 12 per cent, $29; 11 per cent, $28; 10 per cent, $27. The lower grades of imported ferro-silicon are upon about the same basis. These quotations are applicable to Pittsburg territory.

Plates.—The market in plates is still without much life, and dullness prevails. Bookings are light. There is considerable inquiry, however, and a number of projects, including several large riveted pipe undertakings in the west and northwest, are undergoing estimation. Several small mills continue to shade schedule prices about $2 a ton. We quote:

Tank plate, ¼-inch thick, 6¼ to 100 inches, 1.70c f. o. b. mill Pittsburg. Extras are as follows per 100 pounds. Boiler and flange steel plates, 0.10c; A. B. M. A. and ordianry fire-box steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive fire-box steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½-inch to and including 3/16-inch plate on thin edges, 0.10c; under 3/16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—The demand for sheets is not showing any material change, and the buying and specifying against contracts continues as it has been, in small orders for immediate consumption. Mill operations, if anything, are less, ranging under 50 per cent, the Aetna Standard plant of the leading interest having been put on the idle list recently. Though galvanized sheets are the most active, some good specifications are being received for blue annealed. We quote:

Black steel sheets, one pass, cold rolled. Nos. 11-12, 2.10c; Nos. 13-14, 2.15c; Nos. 15-16, 2.20c; Nos. 17-21, 2.25c; Nos. 22-24, 2.30c; Nos. 25-26, 2.35c; No. 27, 2.40c; No. 28, 2.50c; No. 29, 2.60c; No. 30, 2.70c. Galvanized: Nos. 10-11, 2.45c; Nos. 12-14, 2.55c; Nos. 15-16, 2.65c; Nos. 17-21, 2.80c; Nos. 22-24, 2.95c; Nos. 25-26, 3.15c; No. 27, 3.35c; No. 28, 3.55c; No. 29, 3.70c; No. 30, 3.95c. Blue annealed: Nos. 11-12, 1.85c; Nos. 13-14, 1.90c; Nos. 15-16, 2c. Corrugated roofing, $1.75 per square for No. 28 painted, 2½-inch corrugation, and $3.10 per square on galvanized roofing, 2½-inch corrugation, No. 28.

Tin Plate.—Practically normal activity of tin mills is being maintained by current orders, and the outlook for a good summer's run as gaged by the fruit and vegetable products, is reported to be promising. The American Sheet & Tin Plate Co. is now operating about 90 per cent of its mills, which represents practically the full extent of its workable capacity. We quote:

Coke tin plate, 100-pound basis, 14 x 20, $3.70 f. o. b. mill, Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—Specifications on standard rail contracts are coming in a little better, but no additional large tonnages are being taken. Mills 1 and 2 of the Edgar Thomson works are working, but are gaited, and mill No. 3, which has been rolling light, will probably be put on next week. The usual tonnage of light rails was booked in the week by the local maker. There is considerable business being taken in splice bars, the railroads buying for repair purposes. There has been more general buying of standard spikes by the railroads during the past several weeks than for months, though the tonnages placed have not been large and there has been an absence of extended contracts. Among the lines which have bought recently are the Erie, Baltimore & Ohio, Pennsylvania, New York Central, Michigan Central and Big Four. On present specifications on Bessemer rails, we quote as follows:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $36; 12-pound, $32; 16-pound, $30; 20-pound, $29; 25 to 45-pound, $28; angle splice bars for standard sections, $1.65; standard spikes, $1.70 to $1.80 Pittsburg; hand spikes, $1.80 to $1.90 Pittsburg.

Steel.—The billet situation is dull. There is no buying of consequence, and specifications against old contracts are light. The forges are taking a little more steel. Sheet and tin bars are active, and the leading sheet and tin plate producer is regularly taking a large tonnage from the Carnegie Steel Co.

We continue to quote Bessemer and open-hearth billets $28 Pittsburg, and forging billets at $30 Pittsburg, subject to the division of the freight charge over $1 and not exceeding $3, and sheet and tin bars at $29.50 Pittsburg, valley and Wheeling territory, and $29 Pittsburg for delivery to other points.

Hoops, Bands and Cotton Ties.—The cotton tie market is quiet and there is no buying at this time. A fair amount of business is being booked in hoops and bands, but conditions generally in these products are unchanged. We continue to quote the following official prices:

Cotton ties, 85c per bundle Pittsburg, plus the freight on lots of 3,000 bundles or more, and 88c per bundle Pittsburg for less than 3,000 bundle lots.

Hoops in carload lots, 2c; in less than carload lots, 2.10c; bands, 1.60c; base half extras as per standard steel.

Merchant Bars.—The time is approaching when it is expected that some definite action in the way of providing for their steel bar requirements will be taken by manufacturers. There is a more secure feeling among buyers relative to steel bars. The reaffirmation of prices in New York last week and the announcement that no more meetings would be held until fall, implying no price changes, is expected to stimulate confidence with regard to taking on limited stock in the next several months. On reinforcing bars and other specialties rerolled from old rails, low prices are being made by the re-rolling mills. Bar iron business is moving along quietly, the official 1.50c price being well observed. Implement manufacturers are showing an awakened interest in cold rolled steel, and are specifying more actively. The steel is being taken largely for repair work. We quote:

Common iron bars, 1.50c Pittsburg in carload lots and over; 1.60c in less than carloads; 1.47c to 1.50c base Pittsburg plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.60c; plow and cultivator, 1.60c; channels, angles, zees, tees, under 3 inches, 1.70c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting, 56 per cent in carloads, and 52 per cent in less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. Planished and machine straightened tire steel is 1.80c base. Iron finished tire under 1½ by 1½ inches, 1.75c; iron finished tire, 1½ by 1½ inches and over, 1.60c base.

All tire subject to ½ extra on the steel card.

On cold rolled strip steel, width 1½ inches and wider and 0.100 inch and thicker, we quote base prices per 100 pounds, $3.60 on hard and $3.75 on soft.

Structural Material.—A better inquiry characterizes the structural market, but the same spirit of caution as to awarding contracts is being shown by prospective builders. Orders going to the structural mills are light. Prices of fabricating material appear to be lower. The Carnegie Steel Co. has taken the contract to furnish 1,400 tons for an addition to the Fort Pitt hotel, Pittsburg, and has decided to do the fabricating itself. The Joseph Horne Co., Pittsburg, is getting prices for the steel for a large addition to its store, which will require about 3,000 tons. The Chicago, Milwaukee & St. Paul railroad has an inquiry for 500 tons for Chicago work, and the new plant of the Crescent Portland Cement Co. at Wampum, Pa., will require considerable tonnage. Structural steel prices are firm, and we quote:

Beams and channels, 15-inch and under, 1.70c; over 15 inches, 1.80c; zees, 1.70c; tees, 1.75c; angles from 3 to 6 inches, 1.80c; universal and sheared plates, 6¼ inches and wider, 1.70c base.

Merchant Pipe.—Any improvement in merchant pipe that is showing itself at the present time is not of large extent. The market, however, is not losing in strength and the usual run of business of the past several months is being closed. Occasionally a larger project is attracting the attention of the mill. We note the sale of five miles of 16-inch pipe for western oil field purposes. A local gas interest has taken 150 tons of small sized iron pipe for its regular periodical requirements. Some shading of iron pipe is reported in the east. We continue to quote the following official discounts to consumers in carloads, with an additional one point and five off to jobbers:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ inch	65	49	63	..
⅜ inch	67	53	65	51
½ inch	69	57	67	55
¾ to 6 inches	73	63	71	61
7 to 12 inches	70	55	68	53
EXTRA STRONG PLAIN ENDS.				
⅛ to ¾ inch	58	46	56	44
½ to 4 inches	65	53	63	51
4½ to 8 inches	61	49	59	47
DOUBLE EXTRA STRONG PLAIN ENDS.				
½ to 8 inches	54	43	52	41

Boiler Tubes.—There is little movement in boiler tubes at present, and the buyers continue to confine their purchases to immediate needs. We continue to quote the following discounts:

	Iron.	Steel.
1 to 1½ inch	42	47
1¾ to 2¼ inch	42	59
2½ inch	47	61
2¾ to 5 inch	52	65
6 to 13 inch	42	59

2¼ inches and smaller, over 18 feet, 10 per cent net extra.

2¾ inches and larger, over 22 feet, 10 per cent net extra.

Wire Products.—Following the reaffirmation of wire prices last week, there is an improved sentiment in those quarters where reductions had been expected. The market is moving along without feature, but the end of the spring movement is not far distant. We quote as follows:

Wire nails, jobbers' carload lots, $2.05; retailers' carload lots, $2.10; less than carloads, $2.15c; painted barb wire, $2.20 for jobbers in carloads; retailers in carloads, $2.25; and less than carloads, $2.35, with 30c for galvanizing; plain wire, 1.90c for jobbers, and 1.95c by carload.

Wire Rods.—New business in wire rods is not of large proportions, and we quote $35 Pittsburg on Bessemer and $36 Pittsburg on open-hearth.

Coke.—Though there is more buying for extended deliveries in evidence and a better drawing upon existing foundry contracts, the coke market shows no improvement as to prices. A local sanitary manufacturing interest has closed for 10,000 tons of foundry coke for delivery from June to June at a price of about $2. Another large local melter is also in the market. There have been some good-sized purchases of furnace coke by furnaces about to go into blast and a Cleveland furnace interest is in the market for its annual requirements, amounting to about 70,000 tons. The H. C. Frick Co. put on a number of additional ovens this week and is now operating about 43 per cent of its capacity. There is little change among the independents. The figures of the *Courier* for the week of May 9 to 16, 14,658 ovens active with a production of 173,082 tons against 14,655 ovens and 173,045 tons last week. We continue to quote standard Connellsville foundry coke at from $2 to $2.25 ovens and standard Connellsville foundry at from $1.65 to $1.75.

Old Material.—The American Steel Foundries has been buying low phosphorus and heavy melting steel from a number of sources in this territory and is estimated to have contracted for about 12,000 tons. Some of the dealers who participated in these transactions sold short and they are now covering for their requirements. This has given the market some evidence of animation, but the general situation is unchanged and remains one of dullness. Prices are nominal and we qoute:

Heavy melting scrap, $12.50 to $13; re-rolling rails, $14 to $14.25; bundled sheet scrap, $8.50 to $9; iron axles, $18.50 to $19.50; old iron rails, $15 to $16; No. 1 wrought scrap, $13.25 to $13.75; old car wheels, $13 to $13.50; low phosphorus scrap, $16 to $16.50; machine shop turnings, $8 to $8.50; cast borings, $7.25 to $7.75; No. 1 cast scrap, $14 to $14.50.

CHICAGO.

Small Melters Follow the Lead of Large Interests in Buying Pig Iron.

Office of THE IRON TRADE REVIEW, 1328 Monadnock Block, May 26.

Without possibility of question the most interesting feature of the week's market has been the remarkable interest displayed in pig iron. Inquiry has flooded the market and actual contracts placed cover in the neighborhood of 75,000 tons in Chicago territory alone. The purchases of this week differ from those of the preceding week in that the later buyers include the rank and file of consumers who, influenced by the newly created firmness of the situation, followed the lead of the large interests in covering at the bottom prices without regard to their present requirements. The buying movement, therefore, is remarkable not so much from the standpoint of tonnage, in the light of the normal consuming capacity of this territory, but as indicating the importance which attaches to the sentimental influence of crucial moment transactions. Without a single perceptible change in the factor of consumption, plain everyday human nature has contributed a strength to the pig iron market which it has not possessed for many months. Prices have been pretty generally advanced 50 cents a ton and southern iron is now generally quoted at $12 Birmingham, the price at which most of the sales were made being $11.50.

With the exception of a number of small contracts for structural steel, there was but little activity in finished steel materials. Greatest attention is directed toward the future of iron and steel bar prices which are now being very well maintained by Chicago mills.

Pig Iron.—The activity in pig iron reported a week ago when individual contracts for heavy tonnages were placed by a number of the larger

buyers has been followed in this territory by a very considerable buying in smaller lots on the part of consumers generally. In view of the size of the quantities purchased, which, with the exception of a very few round tonnages, did not exceed from 2,000 to 3,000 tons and averaged much less than that, the total sales reported by the various interests are astonishingly large. Reports in the market, as authoritative as can be obtained, credit sales of 20,000 tons to the Tennessee Coal, Iron & Railroad Co., close to 20,000 tons to the Northwestern Iron Co., of which a good proportion went to the leading agricultural implement manufacturer, 12,000 tons to the representatives of Woodward furnaces, 12,000 tons or thereabouts to Matthew Addy & Co., 6,000 tons to Sloss-Sheffield, a like amount to Republic Iron & Steel Co., and about 9,000 tons to the Iroquois Furnace Co. While the evidence of very heavy buying cannot be doubted, the aggregate of 85,000 tons thus outlined is probably a rather liberal estimate of the actual sales. The buying of this week is very patently the result of a belief on the part of the consuming trade generally that the large purchases recorded last week established the bottom price and added a strength to the market which might result in higher prices. In consequence, a flood of inquiry, all of which has not been filled even now, came into the market and almost everyone bought some iron, in part to play safe and in part to fill possible requirements through the balance of the year. While it is probable that the melt of all the various grades of iron purchased will increase somewhat in the next three months and in some directions very soon, there is evidence that the buying has had little to do with the melt. One exception to this is the Allis-Chalmers Co., which is reported to have received large contracts, and has added to its purchase of 10,000 tons reported last week another lot of 5,000 tons. Of this, over 1,000 tons is understood to have been charcoal iron. Practically all of the iron sold during the week was placed at $11.50 Birmingham for No. 2. A little went as low as $11 and better than $11.50 was obtained for some No. 1 iron. Iroquois iron was sold at the prices quoted for some time past. Included in the iron sold, was a considerable quantity of silveries, one interest disposing of about 4,000 tons. The Tennessee company sold a good tonnage of basic and several orders for malleable were placed aggregating perhaps 5,000 tons. Of the inquiry still in the market, more important instances are for 5,000 tons of iron for a pipe plant and an inquiry for 2,000 tons of basic for a Milwaukee interest. The Pennsylvania Steel Co. sold 1,000 tons of low phosphorus iron from one of its eastern furnaces. The deliveries for the most part extend through the third quarter and to a limited extent into the last quarter. Furnaces, however, have avoided as far as possible selling for fourth quarter delivery and only when delivery is to begin very promptly has business been encouraged through the last half, at the ruling prices. The effect of the heavy buying on the southern market which has been the district chiefly involved, was practically uniform with all of the furnaces and most of the interests are now holding at $12 Birmingham for No. 2, standard analysis or fracture, for delivery through the third quarter with other grades on this basis. The Tennessee Coal, Iron & Railroad Co. is still selling at $11.50 for No. 2 but asks $12 for fourth quarter. Some of the irons as "Clifton," are now being held as high as $13, it is given out. Woodward furnace is out of the market on foundry grades. Red River furnace at Clarksville, Tenn., is about to blow in and is reported to be very firm on its silvery prices. In the north the price of Iroquois iron has been raised 50 cents, to $17.50 furnace, for prompt shipment and it is presumed that the price of Sidney iron will be sympathetically affected. The explanation of the increase in prices does not lie in the prospect of an immediate future demand or even a continuance of the present buying at a moderately reduced scale. Most of the furnaces have sold all they wish or expect to sell at existing prices. Indications do not point to a steadily continued rise in prices, but there is good reason to expect that there will be no further recessions. One of the largest selling interests is known to have bought a round tonnage of southern iron at the low point. Little business has been placed at the new prices and we quote prices ruling in transactions.

Lake Superior Charcoal	$19.50 to 20.00
Northern Foundry No. 1	17.50 to 18.00
Northern Foundry No. 2	17.00 to 17.50
Northern Foundry No. 3	16.50 to 17.00
Southern Foundry No. 1	16.35 to 16.85
Southern Foundry No. 2	15.85 to 16.35
Southern Foundry No. 3	15.35 to 15.85
Southern Foundry No. 4	14.85 to 15.35
Southern No. 1 Soft	16.35 to 16.85
Southern No. 2 Soft	15.85 to 16.35
Southern Gray Forge	14.35 to 14.85
Southern Mottled	15.10 to 15.60
Southern Silveries, 4 per cent Silicon	17.85 to 18.35
Southern Silveries, 5 per cent Silicon	18.35 to 18.85
Southern Silveries, 6 per cent Silicon	19.35 to 19.85
Jackson Co. Silveries, 6 per cent	18.90 to 19.40
Jackson Co. Silveries, 8 per cent	20.90 to 21.40
Jackson Co. Silveries, 10 per cent	22.90 to 23.40
Malleable Bessemer	17.00 to 17.50
Standard Bessemer	18.25 to 18.75
Alabama Basic	15.85 to 16.35

Billets and Rods.—Billets are no longer being ordered by weight but by number and inquiries for a few such lots are reported. Nothing of interest has been added to the rod situation. We quote for Chicago delivery rolling billets, $29.50; forging billets, $31.50. Wire rods remain $35 for Bessemer, $36 for open-hearth and $37 for chain rods, f. o. b. Pittsburg.

Merchant Bars.—While some little animation is reported among the users of steel bars and implement steel, the activity of the bar iron mills is at a low ebb. There is practically no new business and specifications are slow. There is undoubtedly some lack of uniformity in the prices offered by mills which can compete in this territory, but the little business being placed makes concession almost imperative. Buying from store was only fair with some days in the week showing better than the average volume of inquiry. We quote as follows:

Bar iron, 1.65c to 1.68c; soft steel bars and bands, 1.78c, half extras; soft steel angles, less than 3 x 3, 1.88c; hoops, 2.18c base, full extras; planished or smooth finished tire steel, 1.98c; iron finish, up to 1½ x ½-inch, 1.93c base tire card; iron finish, 1½ x ½-inch and larger, 1.78c base, steel card; channel for solid rubber tire, ¾ to 1 inch, 2.28c, and 1⅛-inch and larger, 2.18c; smooth finished machinery steel, 2.18c; flat sleigh shoe, 1.83c; concave and convex sleigh shoe, 1.93c; cutter shoe, 2.36⅛c; toe calk steel, 2.33c; railway spring, 1.98c; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 56 per cent off the list for carload lots, and 52 per cent off for less than carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 2.10c, full extras; soft steel bars, $2 per 100 pounds base, plus half extras; soft steel hoops, 2.40c; full extras.

Plates.—There were no changes to record in the plate situation during the past week. While it is not presumable that all requirements for plates have ceased, the demand is weak enough to be scarcely felt. We quote prices for Chicago delivery as follows:

Plates, ¼-inch and heavier, 6¼ to

100 inches wide, either universal or sheared, 1.88c to 1.91c Chicago. For extras see Pittsburg report. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼-inch and heavier, up to 72 inches wide, 2.10c to 2.20c; from 72 to 96 inches wide, 2.20c to 2.30c; 3/16-inch up to and including 60 inches wide, 2.20c to 2.25c; 72 inches wide, 2.45c to 2.55c; No. 8, up to 60 inches wide, 2.20c to 2.25c. Flange and head quality, 25c extra.

Sheets.—With the exception of one or two mills which are cleaning up their contracts, the mill situation in sheets has dwindled to very small proportions. Jobbers are disposing of small tonnages to meet hand to mouth requirements and prices are holding firm. We quote Chicago prices from store as follows: (For mill prices, see Pittsburg report.)

No. 10, 2.20c to 2.25c; No. 12, 2.25c to 2.30c; No. 14, 2.30c to 2.35c; No. 16, 2.40c to 2.50c; Nos. 18-20, 2.60c to 2.65c; Nos. 22-24, 2.65c to 2.70c; No. 26, 2.70c to 2.75c; No. 27, 2.75c to 2.80c; No. 28, 2.85c to 2.95c; No. 30, 3.25c. Galvanized sheets, Nos. 10 to 16, 3.05c to 3.15c; Nos. 18 to 20, 3.15c to 3.25c; Nos. 22 to 24, 3.30c to 3.35c; No. 26, 3.50c to 3.55c; No. 27, 3.70c to 3.75c; No. 28, 3.90c to 4.00c; No. 30, 4.40c to 4.50c.

Structural Steel.—While the tonnage of structural steel placed last week did not contain any so large contracts as were reported a week ago, a fair number of small undertakings came into the market and orders for the necessary steel were placed. In all, about 4,500 tons was placed in this territory. The American Bridge Co. will furnish 937 tons for a library building at the University of California, 1,500 tons for the Kensington & Eastern bridge which the Illinois Central is about to build, 254 tons for bridges at San Bernardino, Cal., and Canyon county, Idaho, to be built by Chas. G. Sheeley, 258 tons for a warehouse for L. Simons at Salt Lake City, and 140 tons for two subsidiary companies of the Steel Corporation. The Minneapolis Steel & Machinery Co. received contracts covering 118 tons for a building in Salt Lake City and a bridge at Bliss, Idaho. The postoffice at Colorado Springs requiring 250 tons will be built by the Des Moines Bridge & Iron Co. and Cotton Bros., general contractors, will furnish 323 tons of steel for Sacramento river bridges. The United Railways of San Francisco ordered 375 tons from Dyer Bros. and the Central States Bridge Co. at Indianapolis will supply the 290 tons of roof trusses for the Coliseum building at St. Louis. Prices are as follows:

Beams and channels, 3 to 15 inches inclusive, 1.88c to 1.91c delivered Chicago. For extras see Pittsburg report. Quotations from store are as follows for carload lots and over:

All angles, 3 inches and larger, including 6 inches, $2.05 per 100 pounds; angles over 6 inches, $2.15 per 100 pounds base; beams, 3 to 15 inches inclusive, $2.05 per 100 pounds, base; channels, 3 inches and larger, $2.05 per 100 pounds base. Less than carload lots are $1 a ton higher than foregoing prices.

Rails and Track Supplies.—It is reported that orders for light rails placed with the leading producer exceeded in volume those of any other week of the year and the tonnage for the month will exceed 3,000. Most of this is for coal mine trackage. Heavy sections are in little demand, the only order reported being about 700 tons for the Joliet Electric railway taken by the leading producer. Specifications show a gradual increase in volume and are now about 70 per cent of those of the same time last year. Spikes and bolts were ordered on contract rather freely, but generally a quiet condition prevails. Prices are unchanged with continued weakness in light rails. We quote as follows:

Standard rails, $28 f. o. b. mill, full freight to destination; light rails, 25-pound to 45-pound, $28; 20-pound, $29; 16-pound, $30; 12-pound, $31. Track supplies, f. o. b. Joliet, angle bars, 1.65c; spikes, 1.80c to 1.90c; track bolts, with square nuts, 2.30c to 2.40c; with hexagon nuts, 2.45c to 2.50c. Small railroad and square boat spikes, 1.90c base, f. o. b. Pittsburg.

Merchant Pipe and Boiler Tubes.—In such volume as has characterized the trade in tubular goods for some time past, business is fairly well maintained. No large business has transpired or is in sight and orders are for small lots and prompt shipments. Prices are as follows:

We quote mill discounts, Chicago delivery, carload lots, as below. On steel pipe jobbers are allowed a concession of one point and 5 per cent additional from the schedule in force:

	—Steel—	
	Black.	Galv.
¼ to 6 inches, inclusive....	71.2	61.2

BOILER TUBES.

	Steel.	Iron.	Seamless.
2¼ to 5 ins., inclusive..	63.2	50.2	49.2

Mill quotations on iron pipe are five points higher than the foregoing prices.

We quote prices from store unchanged, as below. A concession of one-half to one point from these prices is allowed by Chicago jobbers on carload orders shipped from local stocks. We quote for less than carload lots as follows:

MERCHANT PIPE.

	Black.	Galv.
⅛ to ¼ inch.....	64	48
⅜ inch	66	52
½ inch	68	56
¾ to 6 inches.....	71	62
7 to 12 inches.....	68	53

Store prices for wrought iron pipe, carload lots, from Chicago stocks, are as follows: One-eighth to ¼-inch, 59; ⅜-inch, 61; ½-inch, 63; ¾-inch to 6 inches, 68; 7 inches to 12 inches, 65. Boiler tubes from store are unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1½ inches.....	35	35	35
1¾ to 2¼ inches.....	50	35	35
2½ inches	52½	35	35
2¾ to 5 inches.....	60	47½	47½
6 inches and larger.....	50	35	..

Cast Iron Pipe.—The letting of 2,100 tons of pipe at Roswell, New Mexico, was taken by the Texas state penitentiary at Rusk and the United States Cast Iron Pipe & Foundry Co. will make 1,000 tons of 6 and 8-inch pipe for Portland, Ore., 350 tons for Ponca, Oklahoma, and will furnish the pipe for Milan, Mich., about 300 tons. As announced last week, the Detroit contract for 6,500 tons went to the Dimmick Cast Iron Pipe Co. Prices are unchanged and we quote for 4 to 6-inch pipe $27, 6 to 16-inch, $26; larger sizes, $25; gas pipe $1 a ton higher.

Wire Products.—The demand for wire products, particularly barb wire and woven wire fence, is still sufficiently strong so as to make prompt deliveries unobtainable. The mills have no stocks with the possible exception of wire nails and the trade is holding up very well. Prices, while not absolutely maintained by some of the independent manufacturers, are not being subjected to any great pressure on the part of retailers. We quote as follows:

Wire nails, $2.23; painted barb wire, $2.38; galvanized barb wire, $2.68; smooth annealed wire, $2.08; smooth galvanized wire, $2.38; polished staples, $2.23; galvanized staples, $2.63. Carload lots to retailers, 5 cents higher; less than carload lots, 15 cents higher.

Coke.—The purchases of foundry coke last week improved the tone of the market perceptibly and some interests are now holding firmly at $2.25 at the ovens for standard Connellsville foundry coke. Coke can probably be bought lower than this, however, in quantity. Furnace coke is selling at about $1.60 at the oven. Inquiry is

very good and a better situation prevails.

Old Material.—There were some evidences of greater strength in the scrap market during the past week, but there seems to be nothing in the rolling mill situation to justify it. Rerolling rails are somewhat firmer. Buying by consumers is confined to the taking over of small lots at especially favorable prices. The Illinois Central railroad had 5,000 tons of scrap to offer at a private sale. We have revised our prices and quote as follows, gross tons in the first paragraph:

Old car wheels	12.50 to 13.00
Old iron rails	14.75 to 15.25
Re-rolling rails (3 ft. an over)	13.25 to 13.75
Old steel rails (3 ft. and under)	12.00 to 12.50
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	19.00 to 19.50
Frogs, switches and guards	11.75 to 12.25
Heavy melting steel	11.00 to 11.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$11.00 to 11.50
No. 2 R. R. wrought	10.00 to 10.50
Knuckles, couplers and springs	10.50 to 11.00
Shafting	14.00 to 14.50
Iron car axles	16.00 to 16.50
Steel car axles	15.00 to 15.50
Dealers' forge No. 1	9.00 to 9.50
Pipes and flues	7.50 to 8.00
No. 1 cast, 150 lbs. and less	11.50 to 12.00
No. 1 mill	6.75 to 7.25
Mixed busheling (Nos. 1 and 2)	6.50 to 7.00
Country sheet	5.25 to 5.75
No. 1 boiler cut	7.00 to 7.50
Boiler punchings	10.00 to 10.50
Cast borings	4.00 to 4.50
Mixed borings, etc	4.00 to 4.50
Machine shop turnings	5.00 to 5.50
Railroad malleable	10.00 to 10.50
Agricultural malleable	9.50 to 10.00
Stove plate and light cast scrap	9.75 to 10.25
Old iron splice bars	13.50 to 14.00

CLEVELAND.

Slow Movement of Ore—Pig Iron Active and Prices Firmer.

Office of THE IRON TRADE REVIEW, Browning Bldg., May 26.

Iron Ore.—A few more cargoes of ore have been received at Lake Erie ports, and the outlook is that the shipment up to June 1 will be about 150,000 tons, as compared with 6,252,000 tons for the same period last year. The movement from docks to furnaces is also very light. During the past two weeks, rumors of ore being sold at less than the agreed prices have been current, but careful investigation discloses the fact that the leading mining interests, including one large interest which has not always acted in harmony with the others, are adhering to the regular schedule. It is probably true that a few furnace interests having mines are willing to sell some of the ore below regular prices. One central Pennsylvania furnace company which has more ore on dock than it will probably require, is understood to have offered to make a sale at a low price, but so far nothing has occurred to shake the determination of leading interests to close their mines rather than to cut prices. Some reselling of ore has been done at regular prices to furnaces needing small tonnages for their mixtures. The Perry Iron Co., Erie, Pa., which is about to blow in its stack, has purchased a cargo, and there have been some other small transactions. One large mining interest estimates the ore tonnage in furnace yards and on docks May 1 at 20,000,000 tons, but the usual estimates are 5,000,000 tons lower. On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $5; Mesabi Bessemer, $4.75; old range non-Bessemer, $4.20, and Mesabi non-Bessemer, $4.

Pig Iron.—The improvement noted last week has continued and there is increasing evidence that the buying is by no means entirely speculative, but that the melt is increasing, and that many of the inquiries represent what the buyers believe to be their actual needs. Inquiries have been received in large volume and prices are firmer. One furnace interest quotes as follows: No. 2 Scotch, $16.25 for last half, and $15.75 for third quarter only; No. 2 strong foundry, $15.75 for last half, and $15.50 third quarter only. These figures are, however, higher than other interests are making. One furnace which has been steadily in operation is unable to promise June delivery. The United Steel Co., of Canton, is in the market for 6,000 tons of basic, and other inquiries are pending. Prices on basic are firmer and some interests have advanced their quotations to $16 at the furnace. One furnace at Buffalo will be blown in to run on malleable. For Cleveland delivery, we quote as follows:

Bessemer	$16.90 to 17.10
No. 1 foundry	16.00 to 16.25
No. 2 foundry	15.65 to 16.00
No. 3 foundry	15.25 to 15.50
No. 2 southern	15.85 to 16.00
Gray forge	14.25 to 14.50
Lake Superior charcoal	19.50 to 20.00

Coke.—The market has shown decided improvement. One furnace interest has offered to take the entire product of a coke company for the year beginning July 1. Several furnaces are figuring on requirements for the last half and the Perry Iron Co. has contracted for its requirements for that period. We quote $1.60 to $1.75 at the ovens for furnace coke, and $2 to $2.25 for high grade foundry coke.

Finished Material.—There is somewhat better sentiment prevailing, although a few buyers have expressed disappointment that prices were not reduced at the recent New York conference. No transactions of importance are reported, but the outlook is more favorable.

Old Material.—A stronger undertone became apparent in the local market the past week, particularly noticeable in steel stock. Old steel rails for relaying advanced 50 cents a ton and old steel rails under six feet rose $1 a ton. The dollar advance was noted also in steel axles as well as heavy steel and low phosphorus. A light list of railroad material closed with slightly higher prices than in several weeks. We quote f. o. b. Cleveland as follows:

Old iron rails	$14.50 to 15.00
Old steel rails (re-rolling)	13.00 to 13.50
Old steel rails (under 6 ft.)	13.00 to 13.50
Old car wheels	12.50 to 13.00
Old steel boiler plate	9.00 to 10.00
Steel axles	16.00 to 17.00
Malleable iron (railroad)	12.00 to 12.50
Malleable iron (agricultural)	10.00 to 10.50
Heavy steel	12.00 to 12.50
Country mixed steel	10.00 to 10.50
Low phosphorus	14.00 to 14.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$11.50 to 12.00
No. 1 busheling	9.50 to 10.00
No. 1 machine cast	11.00 to 12.00
Iron axles	16.00 to 17.00
Axle turnings	7.00 to 7.50
Machine shop turnings	5.50 to 6.00
Grate bars	9.00 to 10.00
Pipes and flues	9.00 to 10.00
Tank iron	8.25 to 9.25
Hoop and band iron	5.25 to 6.25
Sheet iron	4.25 to 5.25
Wrought drillings	5.50 to 6.00
Stove plate	9.50 to 10.00
Cast borings	4.50 to 5.50

NEW YORK.

Much Activity in Pig Iron—Fair Business in Structurals.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., May 26.

Pig Iron.—The vigorous market of the past week, by contrast with the long stretch of inactivity a veritable boom, has had the effect of stiffening prices on certain lines from the low level reached and has attracted a very considerable volume of inquiry, with actual sales aggregating a round figure. In this immediate territory the most important single sale has been about 4,000 tons. The leading pump interest has purchased for its Buffalo plant about 8,000 tons, divided as follows: No. 2 plain, 6,700 tons; No. 2X, 600 tons; high silicon, 600 tons; high phosphorus, 1,000 tons. The same interest is inquiring for about 5,000 tons for its Harrison, N. J., works. Other sales reported include 1,500 tons for third quarter shipment to a large foundry at Troy, analysis iron equivalent to No. 2 foundry; 1,000 tons of No. 2 foundry for immediate delivery to a Buffalo consumer; 1,300 tons to a New Eng-

land pipe fittings concern; 1,100 tons of No. 2 southern for last half delivery, and numerous smaller tonnages. The larger producers as a rule are not interested in advanced deliveries and are inclined to consider only early shipment orders at the current low level. The beginning of the buying movement was marked by a limited revision of quotations, since which time there has been a slight strengthening in prices. The southern interest most active in the movement is reported to have disposed of about 85,000 tons to date and southern producers are apparently adhering firmly to a minimum of $11.50; in fact, a heavy tonnage offered at a slight concession was refused. Current buying is largely speculative, being based on prospective business, but there is every reason, in crop reports and elsewhere, to expect a gradual though moderate revival of activities through the next few months. The strongest feature of the market is the widespread prevalence of the feeling that better times are at hand. We quote, New York delivery, as follows:

Northern foundry No. 1	$16.75 to 17.25
No. 2X foundry	16.25 to 16.75
No. 2 plain	15.75 to 16.25
No. 2 southern foundry	15.50 to 16.00
Malleable	17.50 to 18.00
Basic	16.00 to 16.50
Gray forge	15.50 to 16.00

Ferro - Manganese.—Inquiries are pending in this market for close to 1,500 tons. Prices have stiffened and $44, seaboard, is now being asked for prompt shipment, with $47 the usual quotation on last half delivery.

Finished Materials.—The 5,200 tons of steel needed for the Scranton shops of the Lackawanna, it is understood, will be furnished by the McClintic-Marshall Construction Co., which has also taken 500 tons for the Allentown state hospital and 600 tons for the Felin building at Philadelphia. The Pittsburg Steel Construction Co. is low bidder on the Fort Pitt hotel in that city, 1,400 tons.

The American Bridge Co. has taken about 600 tons in railway bridges with various lines and a 700-ton library for the University of California. Jones & Laughlin will furnish the steel for two small buildings at Youngstown. The Belmont Iron Co. has taken the contract for a Newfoundland paper mill, requiring about 2,000 tons of steel of which a price of 1.25c Pittsburg is reported. Peter Lyall & Sons have the contract for the Fort Garry station, Winnipeg, and the steel needed, 2,500 tons, will probably be furnished by the Dominion Bridge Co.

The Lackawanna Steel Co. will furnish the 7,000 tons of steel piling for the Black Rock ship canal. New York City has let the contract for a lot of 80 steel mooring posts for the Chelsea piers. Brooklyn subway contracts have been let on five of the six sections, but nothing has developed in regard to the steel. Bids close June 2 on the Educational building at Albany, requiring 6,000 tons.

Rome, N. Y., with 4,000 tons, and Amsterdam, with a like amount, are new developments in the cast iron pipe market. Syracuse is to make awards on 20,000 tons June 1. Otherwise the market is quiet.

Bar iron is seemingly a little stronger, following the meeting last week of the Eastern Association, at which there was a complete interchange of views on the situation. In other lines there is little change. We quote:

Angles, 3 to 6 inches x ¼-inch and heavier, 1.86c; beams, 3 to 15 inches, 1.86c; tees, 3 x ¼-inch and heavier, 1.91c; plates, carloads, tanks, 1.86c; marine boilers, 2.26c; bar iron, 1.56c; soft steel bars, 1.76c; sheets, No. 28, black, 2.66c.

Old Materials.—Aside from one sale of 2,500 tons of heavy melting steel and another of 500 tons, there is little activity in the market, though there is a small inquiry for rolling mill stock of the lower grades. Prices on several lines are lower. We quote, gross tons, New York delivery, as follows:

Old iron rails	$13.50 to 14.00
Old steel rails, re-rolling	14.00 to 14.50
Relaying rails	20.00 to 21.00
Old car wheels	12.00 to 12.50
Old iron car axles	16.00 to 16.50
Old steel car axles	15.00 to 15.50
Heavy melting steel	10.50 to 11.00
No. 1 railroad wrought	13.00 to 13.50
Iron track scrap	11.50 to 12.00
Wrought pipe	9.00 to 9.50
Cast borings	5.00 to 5.50
Wrought turnings	7.50 to 8.00
Heavy cast scrap	13.00 to 13.50
Railroad malleable	9.00 to 9.50
Stove plate	9.00 to 9.50
Grate bars	9.50 to 10.00

CINCINNATI.

Buying of Pig Iron Continues and Prices Are Firmer.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., May 26.

Pig Iron.—Considerable tonnage of pig iron has been sold during the week. All grades have been included and the tonnage has been well distributed. There are but few large sales on the list and contracts mainly covered from 100 tons to 1,000 tons. A number of inquiries are still pending, with the larger tonnages under consideration calling for basic iron. Two Ohio consumers are in the market for basic, one inquiry calling for 3,000 tons and another for from 6,000 to 7,000 tons, for last half delivery. A Central Ohio manufacturer is figuring on 1,000 tons of northern and 1,000 tons of southern foundry iron. An eastern manufacturer asks for prices on 5,000 tons of foundry iron for last half delivery; and there are a number of smaller inquiries under negotiation. The buying and inquiry of the past two weeks has resulted in some furnaces in the south withdrawing their quotations and one of the leading producers has announced a schedule of $12 Birmingham, taking effect May 25. Another large southern producer has withdrawn from the market entirely for last half. It is generally reported in the trade that some of the business taken during the week went at $11 Birmingham, but there are firm offers now under consideration at $11.50, which would indicate that $11.50 is the minimum price now. The trade is not clear as to whether the present buying movement is for investment entirely or whether consumers of pig iron are confident that they will melt the iron in the next three months, or the period for which they are covering their wants. The rate at which shipments will be called for on contracts will to some extent determine how substantial the present demand is. The fact remains, however, that the buying movement and heavy inquiry are having a tendency to strengthen the market, and the decline in prices has apparently been arrested. Southern pig iron is still obtainable at $11.50 Birmingham, but the market seems to be tending toward a $12 basis, as it is believed that the action of one of the leading furnace interests will be quickly followed by others, especially as the demand has not subsided and consumers of all classes are in the market. What effect an advance at this time may have on the purchasing is not clear. Northern furnaces in southern Ohio have not changed their policy and continue to maintain their old schedule, while it is reported that some of the valley interests are advancing their quotations. We quote for prompt shipment and second quarter, delivered Cincinnati, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, as follows:

	PER TON
Southern foundry No. 1	$15.25 to 15.75
Southern foundry No. 2	14.75 to 15.25
Southern foundry No. 3	14.25 to 14.75
Southern foundry No. 4	13.75 to 14.25
Southern No. 1 soft	15.25 to 15.75
Southern No. 2 soft	14.75 to 15.25
Southern gray forge	13.50 to 13.75
Northern No. 1 foundry	16.95 to 17.20
Northern No. 2 foundry	16.45 to 16.70
Northern No. 3 foundry	15.95 to 16.20
Northern 8 per cent silicon	19.70 to 20.20

Finished Material.—No important change in the demand has been noticeable during the week although jobbers report a fair run of business at the stores. Mill orders were moderate but there is not a great deal of business pending. Small orders are filled here from stock at the following prices:

Iron and steel bars, 1.85c to 2c, full extras. Angles, 3 x 3 and over, 2.10c to 2.25c; beams and channels, 15 inches and under, 2.10c to 2.25c; small angles and architectural channels, 2c base; plates, ¼-inch and heavier, 2c; 3/16-inch, 2.10c; No. 8, 2.15c; sheets (blue annealed) No. 10, 2.15c to 2.25c; No. 12, 2.20c to 2.30c; No. 14, 2.25c ot 2.35c; No. 16, 2.35c to 2.45c; box annealed sheets, Nos. 18 and 20, 2.55c to 2.65c; Nos. 22 and 24, 2.65c to 2.75c; Nos. 25 and 26, 2.70c to 2.80c; No. 27, 2.75c to 2.85c, and No. 28, 2.85c to 2.95c; boiler tubes, 2¼ to 5 inches, 62 per cent off base; turnbuckles, 45 per cent off; rivets, 3c base; cold rolled shafting, 47 to 50 per cent off list; steel tire, 2.05c to 2.10c base.

Coke.—Some inquiry for furnace and foundry coke on contracts is under consideration and a few consumers are inclined to invite propositions with a view to covering their wants for the last half of the year and first half of next year. The bulk of the business however, is still confined to prompt shipment coke on which prices remain irregular. The coke market has not apparently been stimulated by the buying of pig iron. Prices on contract in the leading coke producing districts are as follows:

	PER TON
Wise county furnace coke	$1.75 to 2.00
Wise county foundry coke	2.10 to 2.25
Pocahontas furnace coke	1.75 to 1.85
Pocahontas foundry coke	2.00 to 2.25
Connellsville furnace coke	1.65 to 1.75
Connellsville foundry coke	2.00 to 2.25

Old Material.—The market remains quiet, but there are fair offerings and in some instances quotations are slightly lower. We quote dealers' prices as follows:

Old No. 1 R. R. wrought, net tons	$11.00 to 12.00
Cast machine and fdy., net tons	12.00 to 12.50
Old iron rails, gross tons	16.50 to 17.50
Old steel rails (re-rolling) gross tons	12.75 to 13.25
Old short lengths, gross tons	12.00 to 12.50
Old iron axles, net tons	16.50 to 17.50
Heavy melting scrap, gross tons	12.00 to 12.50
Stove plate, net tons	9.50 to 10.50
Wrought turnings	5.50 to 6.50
Cast borings, net tons	4.50 to 5.50
Car wheels, gross tons	14.00 to 15.00

The Red River furnace at Clarksville, Tenn., will blow in this week on high silicon iron. Hickman, Williams & Co. are exclusive selling agents.

PHILADELPHIA.

Large Volume of Inquiries and Considerable Buying of Pig Iron.

Office of THE IRON TRADE REVIEW, 408 Central Trust Bldg. May 26.

Pig Iron.—Not since March, 1907, have there been so many inquiries received and orders placed as during the past week. Sentiment has improved very materially, and while there is no expectation of any violent rebound, the opinion is pretty general that prices have at last reached bottom and that a gradual improvement may be looked for. The orders run in all amounts from 25 tons up to 1,000 and cover every grade of iron, with foundry in the lead. Prices still have quite a wide range, indicating the measure of uncertainty that marks the future. Some furnaces are selling for the third quarter at the same figure as for spot delivery, while others demand an advance of 50 cents and for the last quarter a dollar. Still others bunch the whole of the last half under a 50-cent advance. Inquiries have been received for deliveries as far as July, 1909, but there is a general indisposition to quote prices beyond the present year. Production is now at such a low ebb in this territory that the new rush of business can be met for a time by drawing on the accumulated stocks which recently aggregated considerably over 100,000 tons. When these are well depleted, doubtless some of the now idle furnaces will be put in blast again, but the increase in capacity will be made slowly in order not to disturb market conditions. Little, if any, of the southern iron said to have been sold at Birmingham for less than $11 seems to have been bought for this market. All standard northern irons are held firmly at the ground price of $16.75 for No. 2X foundry, with other grades in proportion. Prices show essentially no change, as follows:

No. 1X foundry	$17.25 to 17.75
No. 2X foundry	16.75 to 17.25
No. 2 plain	16.25 to 16.75
Standard gray forge	15.25 to 15.75
Basic	16.00 to 16.50
Low phosphorus	21.00 to 22.00
No. 2 Birmingham	15.70 to 16.20
No. 2 Virginia	16.75 to 17.25

Finished Materials.—There is no notable increase in activity since the decision of the manufacturers last week to let prices remain unchanged. The time has really been too short to allow intending purchasers to make up their minds as to their future course. New business continues light, especially for iron bars, and prices are without change, as follows: Structural material, 1.85c to 2c, according to specifications; steel plates, 1.85c to 1.90c; refined iron bars, 1.45c to 1.55c; steel bars, 1.75c to 1.80c.

Old Material.—There is a more cheerful feeling in the scrap market, probably in sympathy with the improvement in pig iron, and several lines have been marked up in price because of a little freer buying by the mills. These are apparently also looking for better days soon. Owing to the closing or reduced operation of many plants, the accumulations of scrap are not large, and a little buying is at once reflected in the prices. These are quoted as follows:

Old steel rails	15.00 to 15.50
No. 1 steel scrap	13.25 to 13.75
Old steel axles	17.00 to 17.50
Old iron axles	19.50 to 20.00
Old iron rails	17.00 to 17.50
Old car wheels	13.50 to 14.00
Choice scrap R. R. No. 1 wrought	15.00 to 15.50
No. 1 yard scrap	12.50 to 13.00
Machinery scrap	13.50 to 14.00
Low Phosphorus scrap	17.50 to 18.00
Wrought iron pipe	11.00 to 11.50
No. 1 forge fire scrap	10.50 to 11.00
No. 2 forge fire scrap, ordinary	8.50 to 9.00
Wrought turnings	9.50 to 10.00
Axle turnings, heavy	10.50 to 11.00
Cast borings	9.00 to 9.50
Stove plates	11.00 to 11.50

BUFFALO.

Buying of Pig Iron Promises to Continue.

Office of THE IRON TRADE REVIEW, 932 Ellicott Square, May 26.

Pig Iron.—The past few days has developed a real buying movement, which, if continued, as it gives evidence of doing, will melt away furnace stocks like the mists of the morning. Though there are a few melters who are still holding back to be dead sure of what is going to happen, the majority seem to have come to the conclusion that the bottom in prices has been reached, being further substantially reassured, it is said, by many orders in the past few days. From 200 to 1,000 and, in some cases, 2,000 tons are being taken at the present prices for delivery through May, June and July. A feature of the market is that the furnaces are unwilling to quote on second half delivery, though there is considerable inquiry along that line. There is little or no demand from the railroads, but the tonnage of the present buying movement, if it continues to grow, together with good crops, is expected ultimately to have a beneficial effect in that regard. Prices are a trifle more stable at the lower levels prevailing, though there is still some selling below the general market figures. We quote as follows f. o. b. Buffalo:

No. 1X foundry	$16.50 to 17.00
No. 2X foundry	16.00 to 16.50
No. 2 plain	15.50 to 16.00
No. 3 foundry	15.00 to 15.50
Malleable Bessemer	16.30 to 17.30
Gray forge	15.00 to 15.50
Charcoal	21.00 to 21.50

Finished Material.—Bids will be opened June 2 by the Hydro-Electric commission of Ontario, Canada, for the construction of power transmission towers from Niagara Falls, Ont., to Hamilton, Toronto, London and towns in western Ontario, involving about 5,000 tons of structural material. The Buffalo Structural Steel Co. has been awarded the contract for the erection of 400 tons of structural steel for the Stella Niagara convent at Lewiston, the material to be furnished by the Lackawanna Steel Co. Mention of the steel piling contract awarded the Lackawanna Steel Co. is made elsewhere in this issue.

ST. LOUIS.

Sales of Basic and Foundry Pig—Prices on Southern Firmer.

May 26.

Pig Iron.—The DeCamp Bros. & Yule Iron, Coal & Coke Co. booked another 1,000-ton order for basic iron last week, making this company's recent sales of basic and foundry iron aggregate 20,000 tons. The company also booked an order for 1,200 tons of southern iron for delivery over the last half of the year, and received long-distance telephone messages this morning for prices from the Dain Mfg. Co., of Ottumwa, Ia., on 400 tons of southern iron; the Parlin-Orendorf Co., of Canton, Ill., for 500 tons southern iron, and scattering inquiries bringing the total amount up to 1,200 tons.

Quite a number of inquiries came to the St. Louis territory last week from the malleable plants, which may be closed during the present week. It is reported that an offer for 1,500 tons of No. 2 foundry was rejected by one furnace at $11.30, Birmingham, or $11.75, Sheffield, last Friday or Saturday. There is considerable talk of a buying movement having started, with most of the business having been placed at $11.50, Birmingham. One St. Louis firm said this morning that it did not know of anything below $11.50, Birmingham, for southern iron.

Our quotations, delivered, to which the freight of $3.75 from Birmingham has been added, follow:

No. 1 southern	$15.75 to 16.00
No. 2 southern	15.25 to 15.50
No. 3 southern	14.75 to 15.25
No. 4 southern	14.25 to 14.75

Coke.—A majority of the foundries have partly increased their melt, which has been the means of bringing out more shipments to the St. Louis territory, but very little new business in the way of contracts was reported last week. Prices remain unchanged, at $2.15 to $2.25 ovens for 72-hour Connellsville foundry, for prompt and future Connellsville shipment; furnace coke, $1.50 to $1.75, ovens. Virginia and West Virginia foundry coke is quoted at $2.50 ovens for all deliveries, and furnace coke at $1.50 to $1.75. The freight rate on coke from Connellsville and the Virginia fields is $2.80 to East St. Louis, $2.90 to St. Louis, and $2.40 when destined beyond St. Louis.

Finished Material.—Impetus was given to the structural iron market last week by the acceptance by the public library board of plans for the new Carnegie library, to cost $1,200,000, and the beginning of work on the San Marco apartments on Delmar boulevard between Academy and Lake avenues, to cost $300,000. Cass Gilbert, of New York City, is the library architect. The San Marco building was planned by A. Blair Riddington, of St. Louis. In addition to this, 28 manufacturing plants in the city have announced their active support of the "give-us-a-rest-and-sunshine" movement by assuring the National Prosperity Association that they observe "re-employment day," June 1, by increasing the number of their employes and the number of working hours a day.

Old Material.—The market remains practically the same as last week, with quotations as follows:

Cast iron borings, free from foreign material, net ton	$ 4.50
Steel axle turnings, net ton	8.00
Steel railroad axles, net ton	13.50 to 14.00
Iron railroad axles, net ton	15.50
Miscellaneous steel scrap, gross ton	10.25
Old car wheels, gross ton	14.00 to 14.50
No. 1 railroad cast scrap, net ton	11.00
Heavy machinery cast, net ton	12.00
Stove plate and light cast, net ton	10.00
Sheet iron, net ton, uncut	3.50
No. 1 railroad wrought, net ton	10.50 to 11.00
Railroad malleable, net ton	11.50
Heavy melting steel, net ton	10.00

BIRMINGHAM.

Southern Manufacturers Are Hopeful —Purchase by Brokers.

May 25.

Southern pig iron manufacturers are hopeful of an early recovery and state that there are positive indications of a decided improvement in general conditions in the near future. Quotations are holding at $11.50 per ton, No. 2 foundry. President J. H. Hoadley, of the Alabama Consolidated Coal & Iron Co., recently wired from the east that his company had declined a large order for iron at $11.20 f. o. b. at furnaces, and that sales were being made at the $11.50 rate. The Sloss-Sheffield Steel & Iron Co. blew in its No. 2 City furnace in Birmingham the past week and blew out its Lady Ensley furnace at Sheffield. Inasmuch as the City furnace has a larger capacity than the Sheffield furnace, this means that there will be an increased production as a result of the change. The Sloss-Sheffield Steel & Iron Co. has very little iron on its yards outside of the Florence-Sheffield district. This company has four out of the seven furnaces in blast. The Tennessee company will shortly blow in two furnaces at Ensley.

The announcement last week that one of the brokerage firms had purchased a large quantity of iron for speculative purposes is reiterated, with the assertion that this product was not to be unloaded on the open market for some time to come yet.

Further improvement is noted in the cast iron pipe trade. The United States Cast Iron Pipe & Foundry Co. has put on another pit in its Bessemer works and will shortly have a full force working. The order recently received from St. Louis added to other new business will warrant a steady operation for some time to come.

The Quinn furnace, the small charcoal furnace near Gadsden, has resumed operations.

BRITISH IRON MARKET.

Trade Dull, Prices Low and Prospects Not Encouraging.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., May 16.

There has been a slight decrease in price since last week, yesterday's quotation for Middlesbrough cash warrants being 50s 9d ($12.42), compared with 52s ($12.72) a week ago, with 49s 6d ($12.12) one month ago. The stocks at Middlesbrough on Thursday amounted to 76,195 tons, showing an increase of nearly 3,000 tons over the previous day. A very remarkable situation arose in Cleveland during the week, resulting from a corner in warrants by which a number of bears were caught napping and somewhat severely pinched. Their supply of iron being insufficient for immediate requirements, they were compelled to purchase, and the dealers, seizing the opportunity, disposed of their iron at as high a figure as 56s ($13.70) which is fully 5 shillings above recent quotations. This abnormal figure was entirely confined to Cleveland, and the Midland market is decidedly weak and depressed. Trade is more dull than for a long time past, and there seems

little prospect of a change for the better for some time to come.

METAL MARKET

NEW YORK.

May 26.

Copper.—Following the mild flurry of a week ago, the local market is quiet and featureless, in sympathy with less active conditions abroad. We quote: Lake, 12⅝c to 12⅞c; electrolytic, 12½c to 12¾c; casting, 12⅜c to 12½c. The London market is slightly lower.

Pig Tin. — The decline noted a week ago had continued, as domestic consumers are inclined to regard speculative spurts in the metal with distrust. The current level is about 29c, with spot metal at a slight premium.

Pig Lead.—Slightly higher prices are quoted, 4.35c to 4.37½c, New York, though the demand is still light and current selling is not large.

Spelter.—Pressure to sell in the face of a light demand has sent prices down slightly to about the level of 4.55c to 4.60c, New York.

Antimony.—There is little life to the market and we quote: Cookson's 8¾c to 9c; Hallet's, 8½c to 8¾c; ordinary brands, 8⅛c to 8⅜c.

CHICAGO.

May 25.

The past week was pretty much a repetition of the preceding in this metal market. Copper prices are unchanged but tin is somewhat weaker. Lead prices have advanced slightly. We quote our minimum prices for carload lots with smaller quantities bringing the higher prices.

Lake copper, 13½c to 14c; casting, 13¼c to 13½c; pig tin, 32c to 32½c; spelter, 5.10c to 5.25c; pig lead, desilverized, 4.45c to 4.60c in 50-ton lots; corroding, 4.70c to 4.80c in 50-ton lots; car lots, 2½c per 100 pounds higher; sheet zinc,, 7c list, f. o. b. LaSalle, in car lots of 600-pound casks; Cookson's antimony, 11c to 11½c; other grades, 10c to 10½c.

Prices of old metals are unchanged and we quote to dealers as follows:

Copper wire, 10½c; heavy copper, 10½c; light copper, 9½c; heavy red brass, 10c; heavy yellow brass, 8c; light brass, 5½c; No. 1 red brass borings, 8½c; No. 1 yellow brass borings, 7½c; brass clippings, 8c; tea lead, 3¼c; lead scrap, 3½c; zinc, 3¼c; tin pipe, 25c; tin foil, 22c; pewter, 17c; electrotype plates, free from wood, 4c; electrotype dross, 2¼c; stereotype plates, 4½c; stereotype dross, 3c; prime slab zinc, $62 per ton.

ST. LOUIS.

May 25.

Lead and Zinc.—Heavy rains in the Missouri-Kansas district last week crippled quite a number of mines, and zinc ore slumped one dollar in price, the assay base being $36 for 60 per cent ore, with a top price in the district of $38 a ton. Lead showed a continued upward trend and reached a price of $59 a ton, an advance of $1 over the best offering of the previous week. The advancing price of lead ore enables many mine owners to operate who could not do so at a profit while zinc continues to fall.

Shipments in pounds and their values from the Missouri-Kansas district last week were as follows: Zinc, 8,607,270; value, $141,407. Lead, 1,518,060; value, $43,884.

RECEIVER NAMED FOR SHENANGO IRON & STEEL CO., BUT STAY GRANTED.

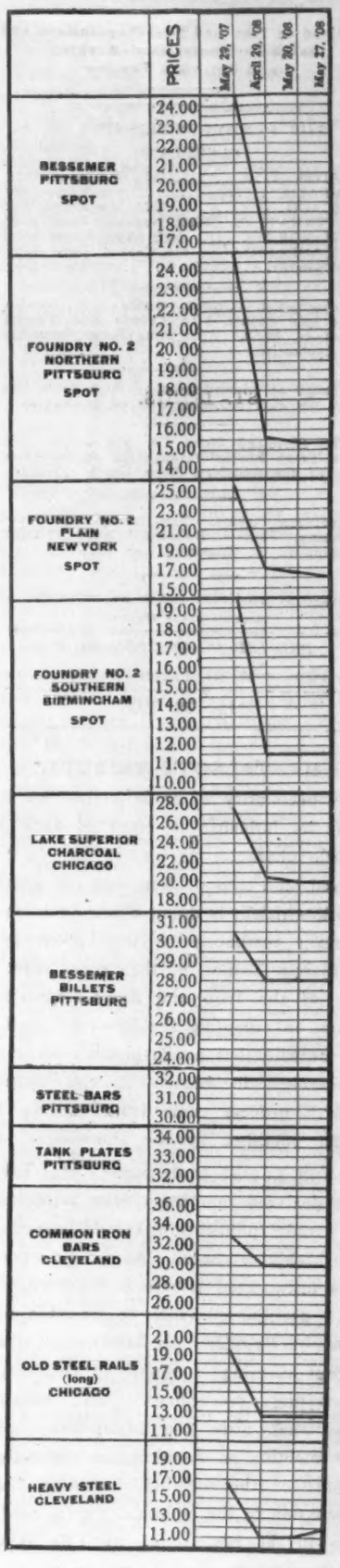
A petition of involuntary bankruptcy has been filed in the United States court at Pittsburg against the Shenango Iron & Steel Co. by the American Scrap Iron Co., of Akron, O., the United Engineering & Foundry Co., Pittsburg, and L. J. Bregman & Co., of Chicago. The respective claims set forth are the American Scrap Iron Co., $1,456.29; the United Engineering & Foundry Co., $1,834.07; and L. J. Bregman & Co., $1,723.87. The court named Charles C. Murray as receiver of the property under a $40,000 bond and the hearing on the petition was set for May 29.

The Shenango company in a subsequent pleading declared that the appointment of the receiver was made without notice having been made upon it and asked that the appointment be stayed until bonds had been given by the petitioners. A stay of the appointment was granted by the court pending a hearing. The Shenango Iron & Steel Co. operates a rolling mill at Wheatland, Pa.

MAIL SUBVENTION'S DEFEAT.

The mail subvention provision for ocean steamships, added as an amendment to the general post office bill, was rejected by the house for the second time within 24 hours on May 23. The vote was 145 to 154. As soon as the action of the house was announced in the senate, a motion to recede from the remaining senate amendments and discharge the conferees was carried and the congressional work on the post office bill was thus completed.

PRICE CHART.



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MR. TALBOT'S TRIBUTE.

A peculiarity of trade journalism is that its influence is often of such a subtle character as not to be appreciated, and it is seldom that the good work which it is doing elicits such important testimony as that given by Benjamin Talbot, at the recent meeting of the Iron and Steel Institute, when, in accepting the Bessemer medal, he said that his inspiration for his researches in regard to the open-hearth process came from reading a paper published by the *Ironmonger*, a leading English trade paper. Mr. Talbot declared that the service rendered by trade publications could not be too highly estimated. At a time when this unexpected tribute is reported, it is a peculiar pleasure to be able to give our readers, so soon after the recent meeting, a report of the very interesting proceedings. In exactly one week after the adjournment of the meeting in London, an elaborate report of the meeting, including the discussion of the technical papers read, was in the home office of THE IRON TRADE REVIEW, a feat, which, we believe, has seldom been accomplished, as few tasks in journalism are as difficult as reporting a discussion of technical papers, which was done in this case in such short time that the report could be carried to America on the first boat leaving after the adjournment of the meeting. We regret that space does not permit publication of the full report in this issue.

In view of the recent organization of the American Iron and Steel Institute, the proceedings of the older organization are of unusual interest. We trust that at a not far distant date the meetings of the new association will attract world wide attention, as do those of the original Iron and Steel Institute.

INJUSTICE TO SHIPPERS.

James B. Clow & Sons, Chicago, manufacturers of cast iron pipe and other products, have called our attention to an injustice from which many shippers are suffering. One lumber company, we are informed, has lost approximately $14,000, and James B. Clow & Son have had an experience which has cost them $286. In the latter case, a shipment of cast iron pipe was to be made from Sheffield, Ala., to Clarion, Ia. The shipper was unable to find any published tariff in his files applying to the through route required, but was informed by the agents of two railroads that the rate was $4.30 per ton. The customer was quoted a price based on the price of pipe in Sheffield, Ala., plus $4.30 for freight, the quotation was accepted and the pipe was shipped, but after the cars arrived in Clarion it was discovered that the rate should have been $6.65 per ton over the quoted rate, making a difference on the shipment of $286. Through no fault of the shipper, but through an error on the part of the railroad's agents, the Clows suffered the loss. Justice clearly demanded that the railroads rebate for the excess charge. The matter was submitted to the Interstate Commerce Commission, which decided that no rebate could be allowed. James C. Clow proposes, in substance, the following amendment to the law, to prevent a recurrence of unjust charges:

Published tariffs shall be absolutely binding upon the railroads and upon those who do not hold a quotation in writing signed by an authorized agent of the roads. All bona fide quotations on freight rates made by an authorized agent shall be binding upon the road he represents. In the event of an error in quoting, the legal rate shall be billed and collected. A claim will then lie for the difference between the amount paid and the amount quoted, but such claim shall be made only through the Interstate Commerce Commission. If the claim is allowed a rebate will be paid the claimant, the railroad will be fined the difference between the two rates, and if there is evidence of an intent to evade the law the matter will be referred to the courts.

A. G. Briggs, general attorney of the Chicago & Great Western railway, in a letter to Mr. Clow says:

It certainly must be conceded that some protection must be provided the shipper. Either tariffs must be made so plain that shippers can ascertain with ease and exactness what rates are, or the shippers should have adequate protection against erroneous quotations from carriers. If you can secure one or the other of these results, your efforts will not have been in vain.

Thomas A. Prouty, of the Interstate Commerce Commission, has expressed his sympathy with the plan advocated by Mr. Clow, and says that he has personally insisted that some way must be found to compel a railway having a rate in effect to quote to a shipper who inquires, and to make good to that shipper any actual damage which may be sustained by relying upon the quotation.

At a meeting of the Traffic club, of Pittsburg, recently held, resolutions were adopted stating that there is a growing tendency on the part of some of the interstate carriers to discontinue supplying shippers with copies of freight tariffs, and expressing the disapproval of the club of any action on the part of the interstate common carriers which tends toward making it more difficult to ascertain the legal rates of freight. The club holds that because of the great mutual interest that should exist between the shipping public and the carriers, it should devolve upon the latter as a moral, if not a legal, duty to continue to assist shippers at least to the same extent that they have in the past, and, if possible, in the future to even a greater extent. This certainly is a reasonable demand, and we believe that the railroads should make every possible effort to assist the shippers, and that, if errors are made, losses should be promptly refunded.

According to a director of the American Ship Building Co., the board of directors will not meet to consider another year's dividend on the common stock until July.

VALUE OF STEEL CORPORATION PROPERTIES.

An audit of the properties of the United States Steel Corporation appears in the June number of *Munsey's Magazine,* prepared and written by Frank A. Munsey, to whom the Steel Corporation lent every possible aid. Taken in connection with the figures submitted by Judge E. H. Gary in an interview with James B. Morrow on April 13, 1908, Munsey's figures are interesting. Munsey figures that the assets of the company are worth $1,782,187,383, or $311,283,272 in excess of the total capitalization of the company. Judge Gary says that "the actual cash value of our property is considerably more than $2,000,000,000." According to Munsey, the ore mining and timber properties are valued at $738,866,017; Judge Gary in his interview says that "the valuation of the ore owned by the Steel Corporation is $1,200,000,000." The Munsey valuation of the coal and coke properties is $142,839,779; Judge Gary holds that the value of the coal lands is $120,000,000, and of the coke ovens and coke equipment $100,000,000, or, the total for the coal and coke properties is $220,000,000. Munsey finds the manufacturing properties, exclusive of the Gary, Ind., plant, worth $382,248,897, and the Gary plant expenditure up to Jan. 1, $24,063,388; sundry real estate, dock facilities, railway terminals, employes' dwellings, etc., aggregate $6,694,973; the Tennessee Coal & Iron Co., $50,000,000, making the total valuation of manufacturing properties, according to Munsey's estimate, $463,007,258. Judge Gary on this point said: "Our physical property, that is, our mills and furnaces, could not be duplicated for less than $400,000,000." Munsey finds the net liquid assets Dec. 31, 1907, are $261,789,885. In Munsey's estimate the Tennessee Coal & Iron Co. is a separate item at an estimated value of $50,000,000, which is somewhat more than the Steel Corporation paid for it, but its chief value lies in its coal and ore properties, which are estimated as worth $100,000,000 and $105,000,000, respectively. Neither, in the Munsey estimate, is included the contract of the United States Steel Corporation for the Great Northern ores listed as an asset.

Albany shareholders of the American Steel Foundries have filed protest against further postponements of the meetings of the committee in charge of the proposed reduction of capitalization plan.

MERCHANT MARINE

And Other Subjects Considered by the National Association of Manufactufers.

At the annual convention of the National Association of Manufacturers, held at the Waldorf-Astoria, New York City, last week, vigorous action was taken on a number of measures of political or semi-political character in which the commercial interests of the country are concerned. Especially was the convention determined in its stand for a revision of the tariff and for a cessation of legislative and executive attacks upon the railways and other important business interests of the nation. J. W. Van Cleave, of St. Louis, was elected president for the third time, and the other officers of the association were continued. In the following report is given a condensed resume of the three days' proceedings.

At the opening session Monday, the first action was to declare strongly in favor of the immediate passage of the ocean mail bill. Along the same line were the measures advocated by George J. Seabury, of Seabury & Johnson, New York, speaking on "Industrial and Commercial Problems and How to Promote Foreign Trade." Specifically he urged:

First—A subsidized oversea mail and merchant marine service, owned, built, and sailed by Americans to every important world seaport.

Second—A permanent tariff council commission of commerce, composed of scientific, industrial or commercial, legal, customs and broad economic experts. This should be done now or first among legislation of the new congress.

Third—The enlargement of our drawback policy for exports to include every important material, not produced in the United States, and revenue taxed product, or any other exportable commodity that contains the whole or a component part, and allow the entire duties or revenue tax to the manufacturer or exporter.

Fourth—Annulment of the German free trade agreement.

Enthusiastic indorsement was given to the report of the committee on interstate commerce, composed of A. B. Farquhar, O. O. Ozias, E. A. Smyth and O. S. Foster. This had reference to the legislative attacks on railway and other properties in many states, blaming the crisis on measures of state authorities rather than upon the activities of the chief executive, emphasized the importance of the projected internal waterways system, urged a reconstruction of the phraseology of the Sherman "anti-trust law" so as to permit combinations not at variance with the welfare of the people, demanded the removal of import duties on all articles or products the manufacture of which is monopolized, and finally declared that the greatest present-day need is a "closer understanding and interaction between the shipping public and the transportation companies."

President Van Cleave was authorized to appoint a committee of 15 to appear before the national executive committees of both political parties and work to the end that "class declaration planks may be omitted from the platforms." A demand was made upon the Interstate Commerce Commission to inquire into the justice of the proposed advances in railway freight rates.

A feature of the closing session Wednesday was the unanimous adoption of this resolution, presented by Mr. Van Cleave:

Resolved, The National Association of Manufacturers believes that we have had excess agitation under the guise of moral crusades, such as child labor, railway reform and similar movements, which are excellent and desirable in reasonable measure, but not so when pressed to the hazard of vested interests and property. We therefore recommend rest and quiet upon such questions, at least until normal business is restored.

James A. Emery, general counsel of the National Counsel for Industrial Defense, made a bitter attack upon President Roosevelt for his utterances in regard to the improper use of the injunction and the pushing of inimical legislation in favor of organized labor. Mr. Emery also assailed the Hepburn bill pertaining to boycotts and discussed other pending legislation in such a vigorous manner that he was frequently interrupted by applause. Gifford Pinchot, head of the United States forest service, made a plea for the assistance of the manufacturers in conserving the natural resources of the country.

Before adjourning, the association resolved to combat all attempts to repeal or nullify the force of the national bankruptcy act. It declared against the parcels post and parcels savings banks, and on other postal matters adopted the following resolutions:

1. That postage on first-class mail matter be reduced to one cent per ounce.
2. That no matter of the second class be conveyed at less than the actual cost of its transmission.
3. That mail matter of the third and fourth classes be consolidated into one class, and a rate of postage be charged for its transmission of one cent for two ounces.
4. That all members of the association report postal shortcomings. The department invites such reports.

It is reported that all departments of the International Harvester Co. will resume operations in full about June 1, owing to the assurances of extremely heavy harvests.

BRIGHT PROSPECTS.

IRON AND STEEL MANUFACTURERS MEET IN NEW YORK,

Express Confidence in the Future, and Adhere to Price Policy—Addresses by Judge Gary, Willis L. King, J. G. Butler, Jr., and Others.

The feeling of depression, anxiety and general gloominess that prevailed at the time of the event which has been commonly known as "The First Gary Dinner," held in New York on Nov. 20, 1907, contrasted in a striking manner with the general feeling of optimism and improved business apparent at the last event of that kind, held May 21. All present, and especially those who had had the opportunity of attending both meetings, were deeply impressed. Cheerfulness seemed to permeate the minds of all and nearly everyone who addressed the guests spoke of the inestimable value to the country at large of the work which had been done by the various committees appointed as a result of the first meeting.

No one, at the earlier date, was competent to gage the future with any certainty or to estimate the extent to which the demoralization which had set in might run. Banks and trust companies, including some of the largest, were closing their doors, all over the continent, while concerning many others the air was full of rumors of a disturbing character. Railroads were unable to finance rapidly maturing obligations and, in some cases, were months behind. Manufacturing establishments of all kinds, which had been running to full capacity, suddenly curtailed production or stopped operating entirely.

No one seemed to be able to explain satisfactorily the cause of all this trouble and no one could foretell its duration or the extent to which the industrial and commercial life of the nation would be affected. It was largely a case of each one for himself. Each successive rumor was depressing. No end was in sight, and the iron and steel business of the country was adrift, with no definite policy. With no man or set of men in control, there was a prospect of a period of demoralization, which might exceed any previous depression in the history of the country. The paralyzing of the iron industry would certainly have most seriously affected every other line of activity.

At this juncture, Judge Gary invited a number of men prominent in the iron and steel business of America to dine with him on the evening of Nov. 6, in New York, and, after the close of that banquet, made a memorable address, extracts from which were quoted fully in our issue of Nov. 28.

As a result of this occasion and growing out of the discussion which there took place, there was appointed a committee of five, who were given full power to add to their numbers, such committee being given authority to act for all those present in any effort they might think wise to prevent the threatened demoralization.

As a result, a positive feeling of confidence commenced to appear, a spirit of willingness to co-operate was manifested and pessimism began to give place to good natured patience, awaiting the return of the period of prosperity now beginning to develop.

Judge Gary's Address.

In addressing those present at the dinner last Thursday, Judge Gary, after thanking all for their attendance, congratulated them upon the fact that there were evidences all about of a substantial change for the better. There was plenty of proof, he said, that the trade is soon to enjoy a period of renewed activity, which would give all a fair share of business. He said the leading manufacturers had succeeded in fully demonstrating to the country at large that hereafter the iron and steel industries of America would conduct their own business and would not be turned aside from their conception of their duty or responsibilities by the public press or any part of it or by those who had a peculiarly selfish interest in seeing business conditions worse than they had been.

Judge Gary stated that he felt sure that no one present had ever regretted becoming interested in the movement which had been inaugurated in the early days of the depression, and he believed that all would have reason to feel proud of the work they had accomplished. He said it had been firmly established that hereafter there would be a willingness on the part of all those engaged in this line of business to meet and confer with their competitors and by that means, perhaps, many of the serious business troubles of past periods would be averted. So far had this movement been successful that he felt that, for the present, there would be no need of continuance of the meetings which they had been holding regularly in New York and that this would be the last gathering of its kind for some time to come.

With reference to the newly organized American Iron and Steel Institute, he said that 160 members had been enrolled and that the work and the policy of the institution would be developed, from time to time; that it was intended to make it a broad gage institution which would affect favorably all phases of the business and, as time went on, the policies of the organization would be more fully outlined and its purposes made more apparent.

Judge Gary further stated that, at the meeting of the general committee, held that day, there had been a unanimous feeling, with practically no discussion whatever, that it would be extremely inadvisable to change or in any way reduce the prices which had been in force for so many months and that they might, therefore, be regarded as fixed. He said that, at the beginning of the recent panic, manufacturers had been besieged by the jobbers, middlemen and others whose business required the laying in of a large stock, all urging that no price cutting should take place, as that would result in large losses to the holders. Now, however, that these stocks had been very largely disposed of, these same parties were quite anxious that, as far as possible, prices should be reduced, the evident idea being to permit them to again take on large supplies, with the hope that, with a subsequent increase in price, they would be able to make large profits. As this would be of no advantage to the ultimate consumer, who is the party really most directly interested, there was a very strong feeling against the manufacturers being a party to a plan which might have done much harm and not have done the consumers any good.

Mr. King's Tribute.

Following Judge Gary, Vice President Willis King, of the Jones & Laughlin Steel Co., reviewed briefly the history of the past few months, from the standpoint of the independent manufacturer, and pointed out effectively that everybody interested, whether as a buyer or seller, had been greatly benefited by the extent to which the various manufacturers of iron and steel products have been co-operating. For the first time in the history of the business, he stated, they have passed through a panic period without complete demoralization, and as a result, they were in better position than ever before to enjoy a period of renewed activity. From the manufacturers' standpoint, he gave to Judge Gary the credit for having successfully brought together a large number of independent industries and, as a result, a degree of stability had been established in the iron and steel business, which had affected favorably the business of the entire country.

In reply, Judge Gary thanked all those present for their kind tribute of friendship and stated that no one man could have been more greatly honored than he had been in the past few months by the way in which he had been helped and comforted by the confidence in him which those who

were then present had shown in and by the aid they had given him in solving the many problems which came to him in connection with the discharge of his duties. No one man, he stated, could have had greater honor conferred upon him; no one man had been more substantially assisted and he rejoiced to think of the extent to which he had been shown friendship by those present and the extent to which this friendship had grown into a bond of strength and affection during the month just gone by.

President E. A. S. Clarke, of the Lackawanna Steel Co. stated that one very important result of the experiences through which they had all gone had been the extent to which it had been a means of bringing a great many men of this country together in forming friendships where previously there had been but a slight acquaintanceship. He felt that there was one point which they should not overlook and that was the tendency of the times toward conserving the natural resources. Mr. Clarke stated we were rapidly approaching what might be termed the "By-Product Age," when every atom of matter would have to be developed to the greatest possible extent and nothing wasted, and in that he was thoroughly in line with the policies of President Roosevelt.

J. G. Butler, Jr., of Youngstown, delivered an effective address on the need of an American Merchant Marine to aid American commerce and to assist Americans to get their share of the business of other countries, which would be of the greatest value in times of financial or industrial depression. Mr. Butler also spoke entertainingly of a recent trip he had made through the south and of the opportunity which had been given him to inspect the plant of the Tennessee Coal, Iron & Railroad Co., at Ensley, Ala. He highly complemented those who had had the courage to design and construct a business of that kind in that territory, saying that much credit was due the original owners and officers of the property for the work they had done.

Mr. Perkins' Review.

George W. Perkins said that the restoration of the prosperity of the country depended very largely upon three different factors, viz., the settlement of the financial situation, satisfactory solution of the political problems and satisfactory crops. He felt that the financial and political problems were being adjusted gradually and in a way which would ultimately please the majority of the people of this country. He spoke of the extent to which he had satisfactory assurances from a number of different interests with which he had business connection that the crop prospects in the United States had never been better in this country at a similar time during the past 11 years. He laid special stress upon the fact that hitherto it had been almost impossible for farming communities to get sufficient labor to either plant in the spring or harvest in the fall and, as a result, the farmers and the country as a whole had suffered immeasurably; but this year there will be, he stated, an entirely different situation in that respect and he felt that the farmers would have an opportunity to take care of their crops and gather and store them in a way they had not been able to do for many years.

W. L. Brown, of Pickands, Brown & Co., Chicago, commented favorably upon the policy which seemed to actuate the iron and steel manufacturers during the past few weeks, stating he believed that, as far as pig iron was concerned, prices were actually at the bottom; and that we would see a steady, though gradual, resumption of business, from this time forward. He complimented all those who had had to do with the movement to prevent maters from becoming worse.

W. P. Snyder, of Pittsburg, said that nothing could be said which would more effectively demonstrate that conditions were changing for the better very rapidly than to state that fully 200,000 tons of pig iron had been sold in the past 10 days, this amount having been equally divided between the north and south, and that, while some of it might be sold for future use, still conditions were sufficiently certain to warrant many contracts being placed for other material, as well as pig iron, and that, in a few weeks, all would see a very remarkable change in the situation.

The Guests.

Morris Bachman, president Sharon Steel Hoop Co., Pittsburg.
Edward Bailey, president Central Iron & Steel Co., Harrisburg.
George Bartol, general manager Otis Steel Co., Cleveland.
Frank J. Billings, Tod, Stambaugh & Co., Cleveland.
C. W. Bray, president American Sheet & Tin Plate Co., Pittsburg.
W. L. Brown, chairman American Ship Building Co., Chicago.
E. J. Buffington, president Illinois Steel Co., Chicago.
John A. Burden, president Burden Steel & Iron Co., Troy, N. Y.
J. G. Butler Jr., president Bessemer Ore Association, Youngstown.
J. A. Campbell, president Youngstown Sheet & Tube Co., Youngstown.
H. S. Chamberlin, president Roane Iron Co., Chattanooga.
E. A. S. Clarke, president Lackawanna Steel Co., New York.
D. M. Clemson, president Carnegie Natural Gas Co., Pittsburg.
Thos. F. Cole, president Oliver Iron Mining Co., Duluth, Minn.
E. S. Cook, president Warwick Iron & Steel Co., Pottstown, Pa.
Daniel Coolidge, president Lorain Steel Co., Philadelphia.
Geo. W. Cope, editor *Iron Age*.
H. Coulby, president Pittsburg Steamship Co., Cleveland.
George G. Crawford, president Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
T. I. Crane, Pilling & Crane, Philadelphia.
H. G. Dalton, Pickands, Mather & Co., Cleveland.
Charles Deering, chairman International Harvester Co, Chicago.
W. B. Dickson, second vice president United States Steel Corporation, New York.
A. C. Dinkey, president Carnegie Steel Co., Pittsburg.
Thomas A. Edison, Orange, N. J.
R. H. Edmonds, editor *Manufacturers' Record*, Baltimore.
B. F. Fackenthal Jr., president Thomas Iron Co., Easton, Pa.
J. A. Farrell, president United States Steel Products Export Co., New York.
E. C. Felton, president Pennsylvania Steel Co., Philadelphia.
W. J. Filbert, comptroller United States Steel Corporation, New York.
E. H. Gary, chairman United States Steel Corporation, New York.
James Gayley, first vice president United States Steel Corporation, New York.
T. W. Guthrie, president Republic Iron & Steel Co., Pittsburg.
E. M. Hagar, president Universal Portland Cement Co., Chicago.
J. A. Hatfield, president American Bridge Co., New York.
Austin Heckscher, president R. Hecksher & Sons Co., Philadelphia.
Jos. H. Hoadley, president Alabama Consolidated Coal & Iron Co., New York.
James H. Hoyt, Cleveland.
C. R. Hubbard, president Wheeling Iron & Steel Co., Wheeling, W. Va.
A. F. Huston, president Lukens Iron & Steel Co., Coatesville, Pa.
O. W. Hutchinson, president Grand Crossing Tack Co., Grand Crossing, Ill.
Archibald Johnston, president Bethlehem Steel Co., So. Bethlehem, Pa.
J. R. Jones, secretary Alan Wood Iron & Steel Co., Philadelphia.
W. V. Kelley, president American Steel Foundries, Chicago.
I. A. Kelley, president Ashland Steel Co., Ashland, Ky.
D. G. Kerr, president Pennsylvania & Lake Erie Dock Co., Pittsburg.
Willis L. King, vice president Jones & Laughlin Co., Pittsburg.
O. P. Letchworth, Buffalo.
James Lord, president American Iron & Steel Mfg. Co., Lebanon, Pa.
C. H. McCullough, vice president Lackawanna Steel Co., Buffalo.
George G. McMurtry, chairman American Sheet & Tin Plate Co., New York.
Charles MacVeagh, general solicitor United States Steel Corporation, New York.
Benjamin Nicoll, New York.
Edwin N. Ohl, president United Iron & Steel Co., Pittsburg.
W. P. Palmer, president American Steel & Wire Co., Cleveland.
Leonard Peckitt, president Empire Iron & Steel Co., Catasauqua, Pa.
John A. Penton, managing editor THE IRON TRADE REVIEW, Cleveland.
George W. Perkins, J. P. Morgan & Co., New York.
H. F. Perkins, International Harvester Co., Chicago.
Veryl Preston, president Eastern Steel Co., New York.
J. H. Reed, president Bessemer & Lake Erie R. R. Co., Pittsburg.
David Reeves, president Phoenix Iron Co., Philadelphia.
John Reis, assistant to president United States Steel Corporation, New York.
F. B. Richards, M. A. Hanna & Co., Cleveland.
Ferd. W. Roebling, Roebling's Sons Co., Trenton, N. J.
Wallace H. Rowe, president Pittsburg Steel Co., Pittsburg.
Z. G. Simmons Jr., Simmons Mfg. Co., Kenosha, Wis.
I. M. Scott, president La Belle Iron Works, Steubenville, O.
C. M. Schwab, chairman Bethlehem Steel Co., New York.
F. C. Smink, president Reading Iron Co., Reading, Pa.
F. B. Smith, president Crucible Steel Co., Pittsburg.
H. S. Snyder, vice president Bethlehem Steel Co., So. Bethlehem, Pa.
W. P. Snyder, president Shenango Furnace Co., Pittsburg.
Powell Staekhouse, president Cambria Steel Co., Philadelphia.
Moses Taylor, vice president Lackawanna Steel Co., New York.
Alex. Thompson, Inland Steel Co., Chicago.
John A. Topping, chairman Republic Iron & Steel Co., New York.
W. R. Walker, assistant to president United States Steel Corporation, New York.
F. S. Witherbee, Witherbee, Sherman & Co., New York.
F. W. Wood, president Maryland Steel Co., Sparrows Pt., Md.
Edward Worcester, vice president National Tube Co., Pittsburg.
W. P. Worth, Worth Bros. Co., Coatesville, Pa.
Charles H. Zehnder, New York.
August Ziesing, president American Bridge Co., Chicago.

LARGE SHEET PILING CONTRACT AWARDED LACKAWANNA STEEL CO.

The Lackawanna Steel Co. has been awarded the contract for furnishing 7,000 tons of sheet piling for the construction of the cofferdam on the site of the proposed government ship lock in Black Rock harbor, Buffalo. The award was made by MacArthur Bros. & Co., New York, the contractors, after driving, under government supervision, test lots of piling of the Lackawanna, Carnegie and Jones & Laughlin steel companies. The piling of any of the three companies was acceptable to the government engineers and the contractors. The advantage of convenient delivery by the Lackawanna Co. from its plant at West Seneca was one of the determining factors in the selection of that company's material.

Third Vice President O'Leary, of the Iron Molders' Union, is authority for the statement that about 30 per cent of the organized molders of the country are employed.

OBITUARIES.

Benjamin Bradford Child, for 43 years general foreman of the Dayton, O., plant of the Barney & Smith Car Co., died May 14, aged 82 years. He was born in Livermore, Mass., Aug. 29, 1825, and in 1845 he entered the employ of a car building company at Worcester, Mass. In 1855 he became general foreman of the Barney & Parker Co., Dayton, now the Barney & Smith Car Co., and served until March 17, 1898.

Walter Hatfield, head of the Delaware Rolling Mills, for many years operated under the name of Hughes & Patterson, in Philadelphia, died at his home in that city last week, aged 50 years. He was a graduate of the University of Pennsylvania, was unmarried, and a great traveler, spending a portion of every other year abroad. Mr. Hatfield was a son of the late Dr. Nathan Lewis Hatfield and was a member of several clubs in Philadelphia. Associated in business with him was Robert J. Hughes, son of one of the former proprietors of the rolling mills.

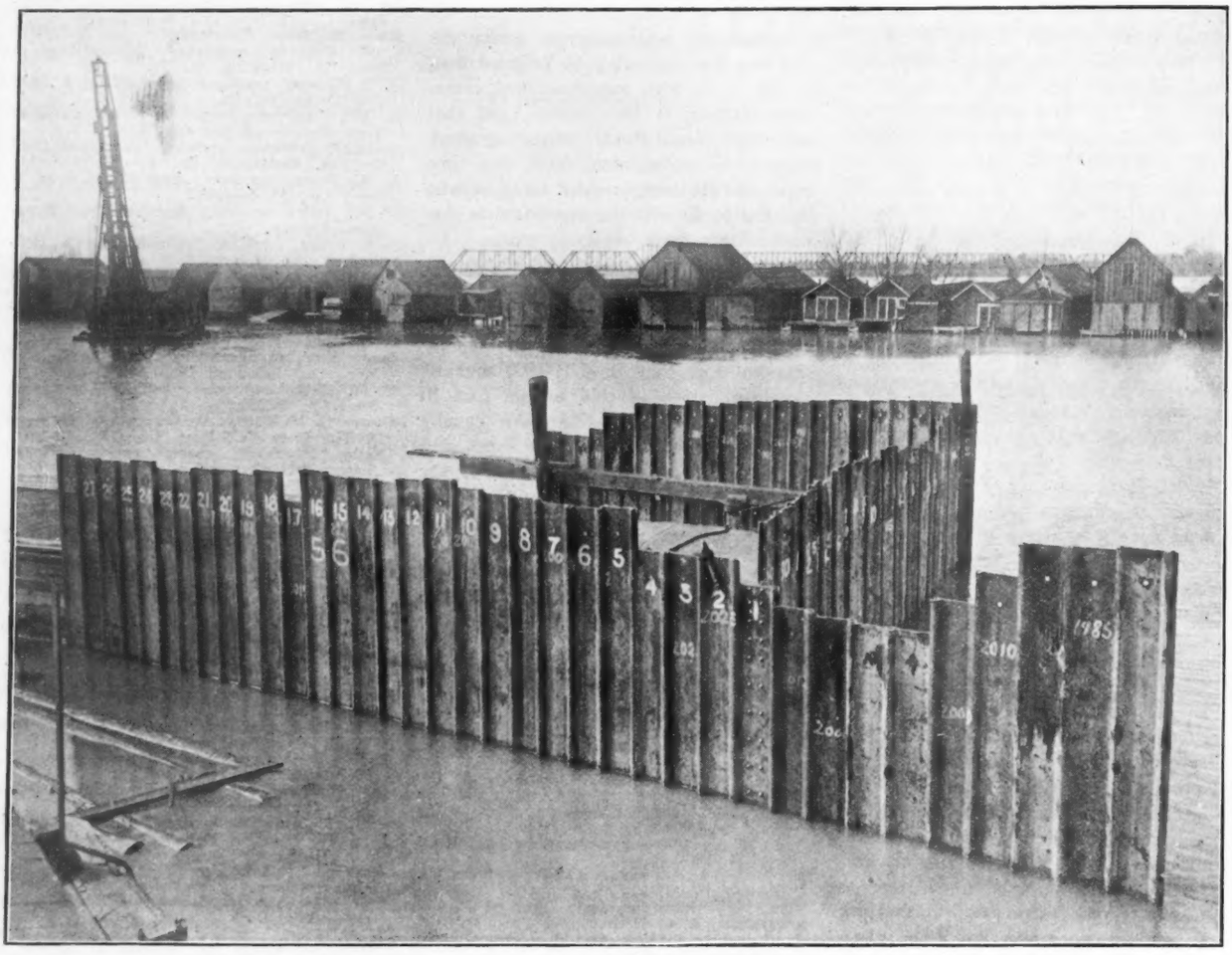
PERSONAL.

Elihu H. Cutler, of Springfield, Mass., has been elected secretary and treasurer of the Consolidated Mfg. Co., Hartford, Conn., which has been organized to make specialties with capital stock of $90,000. M. C. Hillery, of Hartford, who owns a controlling interest, has been elected president.

Charles J. Kirk has resigned as president and general manager of the New Castle Forge & Bolt Co., New Castle, Pa., to devote his attention to the interests of the United States Dry Galvanizing Co., of which he is president. This company controls a new process for making steel impervious to rust and known as "Sherardizing."

G. P. Thomas, of the Standard Bridge Tool Co., Pittsburg, will present a paper on "Tools and Equipment in Structural Shops" June 16 before the structural section of the Engineers' Society of Western Pennsylvania at Pittsburg.

Edwin W. Ashby has been appointed chief engineer of the Lehigh Valley railroad, to fill the vacancy caused by the death of Walter G. Berg.



GENERAL VIEW LOOKING NORTH, SHOWING LACKAWANNA BAR IN COFFERDAM FOR SHIP LOCK AT BLACK ROCK HARBOR.

IMPORTANT REFORMS IN SELLING MACHINERY

Manufacturers Working to Overcome Cancellation of Order Abuse--- Uniform Contract and Retention of Title Discussed--- Meeting of the National Machine Tool Builders at Atlantic City

The proceedings of the first sessions of the National Machine Tool Builders' Association's semi-annual meeting at Atlantic City were reported in THE IRON TRADE REVIEW of May 21. The concluding session developed discussion on a number of topics of foremost importance to the machinery manufacturing industry and rounded out one of the most satisfactory conventions in the association's history. The next meeting, which is the annual gathering, will be held in New York City some time in October.

The growth of the organization has developed the necessity of increasing the number of special committees and it is probable that the makers of grinders will shortly form an additional group. The list now includes: Engine lathe; geared head lathe; planer; shaper; boring mill; radial drill; upright drill; sensitive drill; milling machine; and gear cutting machine. In this connection, at the suggestion of President Eberhardt, the association took preliminary action necessary to broaden its membership by appointing a committee to revise article 3, section 1 of the constitution, which has reference to the eligibility of members. The chairmen of the various committees were asked to prepare lists of all manufacturers of machine tools along their particular lines.

Uniform Dealers' Agreement.

Israel H. Johnson Jr., of Philadelphia, reporting as chairman of the committee "to meet the National Supply and Machinery Dealers' Association committee, when necessary," stated that certain members were not satisfied with the draft of a uniform selling agreement with agents as originally presented, and laid before the convention two suggested alterations of the objectionable section. This has reference to the course to be followed in regard to prices on stocks ordered or in dealers' hands, after the manufacturer announces a change in price. The recommendations of the committee were not unanimous and the entire matter was referred to the executive committee for a careful consideration of the varied plans proposed, copies of which will be mailed to members for definite action at the New York meeting.

Troubles with Foundry Work.

C. H. Norton, of Worcester, chairman of the committee on foundry matters, presented a minority report signed by himself and a majority report signed by P. E. Montanus, of Springfield, O., and P. G. March, of Cincinnati, the other members of the committee. The gist of Mr. Norton's recommendations is contained in the following paragraphs taken from his report:

After due consideration, a list of questions was sent to our members, intended to bring out the facts in regard to our experience with foundries, to, if possible, determine whether we had cause for complaint. Replies were received from 60 members. Eleven of these members report having their own foundry, and these also report that they have experienced none of the troubles indicated by the list of questions sent out. It is very gratifying to know that people owning their own foundries are free from trouble.

From the questions and answers it would seem evident that the machine tool builder buying castings is handicapped by the necessity of carrying on his shoulders a part of the business of the foundries; that the business methods of the foundries warrant an official protest from us as an organization; and that we, as an organization, take some steps to break up the traditional methods of doing business with foundries, and insist that the iron foundries, like all others with whom we do business, shall take their legal and just burden upon themselves, and transact their business with us precisely as we have to do with our customers; that they be responsible for their product, and that they know before their product leaves their works, the same as we have to know before our product leaves our works, whether it is suitable for the use of their customers or not.

The Foundryman's Side of It.

The report signed by Messrs. Montanus and March expresses the opinion that the questions referred to above were "considerably jug-handled in character," insofar that * * * they were "altogether from the standpoint of the buyer of castings." Their report continues:

It goes without saying that anyone who has had any business at all with the foundries, or has been connected with them directly, knows that many elements, many conditions, many complications arise in the daily practice, that are difficult to analyze, and subject to results over which he has no immediate control.

It is a well-known business fact that the average foundry has not been the financial success that perhaps other businesses are. Largely owing to the fact of the low prices prevailing, the usual buyer of castings seeks absolutely the lowest market, and then expects the best results and the best goods. Such is not the case where fair prices are given for the goods, and when fair prices are given the buyer usually can demand the high excellence that our worthy chairman expects.

We really also believe that the answers to the questions did not show careful attention on the part of the replies, insofar that on question 3, some of the answers gave a variation of weights in castings, as high as 10 per cent to 15 per cent, and one even giving 30 per cent variation in weight of a large casting.

As to questions 4 and 5, we think it no more than fair and proper that the buyer should visit the foundry, and furnish blue-prints for castings, and even follow same up day by day in case there should be the slightest possibility of a doubt on the part of the foundryman to understand same.

Do not forget that you should not expect the foundryman to know all the details at sight of the castings that you may want, and on which you have yourselves given many hours of thought, from the designing down to the finished pattern.

We are firm in the belief that the average foundryman inspects all the castings before delivering if they show evidence of being imperfect, but it is no more than fair and natural to suppose that in case of a doubtful casting the buyer should be requested to use same, if possible, and when same cannot be used at all, no foundryman should object to taking it back, without prejudice.

As to question 10, regarding uniform quality of iron, trade conditions and the source of supplies make it almost impossible for the foundryman to guarantee or even expect uniform quality.

Questions 12, 13 and 14 apply largely to the mechanical end of the foundry, and when glaring inaccuracies take place, like misplaced cores, name plates upside down, or entirely omitted, the foundryman needs no defense and should not expect it.

We believe that no foundryman can afford to pay for labor on castings that at first examination appear good but on machining develop defects, unless the initial contract price is sufficient to prohibit the foundryman from objecting to allow such charges to be entered against him.

How many buyers of castings in our association do not send formal orders with their patterns?

How many patterns are frequently sent, without numbering, and is it not possible that there is a lax system in vogue, in the ordering of castings, that make it a burdensome problem for the foundryman to keep track of said patterns?

Is it not possible also that the de-

signer and maker of patterns frequently places dowel pins (metal or otherwise) in such a place that the placing is absolutely non-mechanical from the foundryman's point of view?

The foundryman pays spot cash for his material and labor. Do we always pay our foundry bills promptly, absolutely according to contract? This report is merely to draw your attention to the Golden Rule of "Give and Take," believing that the average foundryman is ready at all times not to constantly quibble and quarrel with his customers, but is ready at all times to do the fair thing.

Have we not all found him accommodating many times? Have we not frequently sent patterns late in the afternoon with the request to have same put in immediately, for tomorrow's use? Have we not cancelled orders for many of the pieces after they were made? Have we not asked for castings, which on examination and research found had never been formally ordered?

Have we not been requested many times to alter patterns, that would facilitate better results, or quicken operations, and not granted them?

In other words, and finally, are there not two sides to the question?

We do not wish to drive the job foundry out of business, but if all the conditions as indicated by the 33 questions were fully complied with, from the buyer's standpoint, we honestly believe the foundryman would have to go out of business, or raise his prices.

Investigation of Claims.

Reporting for the committee on claims of buyers against manufacturers, Murray Shipley, of Cincinnati, recommended that the association adopt as its rule this method of procedure; give prompt attention to any claim made by the buyer, and, if necessary, send a man to investigate it, with the understanding that if the claim is substantiated, the manufacturer shall bear all the expense involved, and if not, the expense shall be met by the customer. William Lodge, of Cincinnati, commented upon the necessity of a definite understanding as to the costs of the investigation before the manufacturer sends his representative out on the case. The committee's recommendation was adopted.

Uniform Contracts with Consumer.

The necessity of providing remedies for the two great bugbears of the machine tool maker's existence, through the reservation of title to his machines until fully paid for in cash and through the prevention of indiscriminate cancellations of orders, was emphasized in the report of the committee appointed at the fall meeting to investigate the matter of a uniform contract with the consumer. The intention was, if possible, to provide a contract suitable for use both by the manufacturer who sells, either entirely or in part, direct to the consumer, and by the dealer in his transactions with the consumer. The report was based chiefly on replies from a large number of members appealed to for their experience or suggestion in the matter. One member of the committee has used for some time a form of proposal covering the points referred to and has met with no objection. The committee is composed of C. A. Johnson, J. B. Doan and Geo. W. Fifield. Mr. Johnson said:

Retention of Title in Seller.

In our correspondence several points have been raised in connection with these propositions, and we will first discuss the question of retention of title in the seller until the goods are paid for. The speaker firmly believes that this would cause practically no trouble; certainly it would cause no trouble if all sales contracts for machinery were made embodying such a provision. In many lines of business it is practically impossible to make purchases without signing contracts in which title is reserved to the seller. It has been the experience of the company with which the writer is connected that only in one case out of many hundreds has the question been raised, and then only by a company whose credit was questionable.

Practically all those who purchase machinery do so expecting to make full payment for same, and it would seem that a purchaser would be subjected to no considerable hardship if, through any cause he failed to make payment, the machinery in question was taken possession of by the party from whom it was purchased. He would have had the use of the machine and even though a large part of the account had been paid, the seller would only be entitled to compensation for the use of the machine and the depreciation thereon.

The whole matter really resolves itself into this proposition: Are machinery manufacturers and dealers more anxious concerning the interests of purchasers than they are for their own interests? No concern could afford to be unreasonable as regards its action in case of sales made on the terms proposed, on account of injury to its reputation.

It appears that the advisability of embodying the provision could not be questioned provided it can be introduced without too much trouble, and this is a question that will require both time and some expense to investigate. The laws of the different states vary considerably as regards conditional sales. In some states the embodiment of such a clause as above outlined in a contract signed by the purchaser is all that is necessary to keep the title in the seller until the machine is paid for; in other states it is necessary to have witnesses; in others the contracts must be recorded, and so on. Therefore, it may be necessary to use different forms for different states, but if all manufacturers and dealers agree to use specific forms, prospective buyers will have to conform to the requirements or else remain without the desired machinery.

It should be said here that this is not a radical step as regards business generally, because, as before stated, in many lines of business this provision is being used generally. If it were found to be impossible to make a form of contract satisfactory for all states, it could be made for those states where such provisions would be legal; certainly half a loaf is better than none; but it appears that a way has been discovered whereby those selling machines embodying patented features, can, if necessary, regain possession of them by taking proceedings in the United States court even though the party to whom the goods were originally sold had in turn sold them to another party. A statement to this effect appeared recently in one of the trade journals, although the report may not be authentic.

Non-Cancellation Clause.

Concerning a provision against cancellations, this also has been questioned for various reasons. In the past it has been the almost universal custom for purchaser to cancel orders at will and the manufacturers or dealers have accepted cancellations as gracefully as possible. It would certainly appear that the manufacturer should have something to say as regards the cancellation of an order when he may have expended, up to the time of receiving cancellation, from 50 per cent to 100 per cent, or possibly more of the purchase price.

The purchaser is subjected to no expense, in most cases, until he receives the machinery at his plant. On the contrary, the seller is at some expense before he receives the order, and the expense continues until he makes delivery of the machine. No one can question the right of the purchaser to cancel an order if delivery is not made at the promised time, but cancellations on account of temporary business depressions are quite different. Unless profits of machinery manufacturers are greater than generally believed, the burden imposed by the necessity of carrying one or more machines, would not be much heavier on the purchaser than on the manufacturer, and if the manufacturer is willing to take chances of getting payment, he should have something to say as to whether or not shipment should be made. Especially should manufacturers be protected against cancellations from those who take such steps in the belief that they ought to be able to get reduced prices by the time the goods are actually wanted.

It is safe to say that there are very few manufacturers of machine tools who would, today, have so large an investment in stock machines, had it not been for the fact that many orders were placed by consumers on a speculative basis, knowing that cancellations could be made if desired. The manufacturer, however, considered it necessary for him to make preparations to furnish machines as specified with the result, as above stated, that many have more stock machines than they would like to carry.

It is not the opinion of the members of the committee that cancella-

tions can be absolutely prevented, but united action on the part of the manufacturers and dealers will undoubtedly improve existing conditions. Neither the manufacturer nor the dealer could afford to be unreasonable, but it certainly seems that the man who has his money invested should at least be consulted.

Not only do we believe that the general use of a sales contract form, embodying the above provisions and other usual and reasonable requirements would benefit machinery manufacturers and dealers, but would also have a beneficial effect on business generally.

The policy of allowing buyers to cancel their orders at will was deprecated by several speakers, among them E. P. Bullard, of Bridgeport, Conn., who cited the practice of automobile manufacturers to require a 20 per cent deposit with orders. On motion of C. Wood Walter, of Cincinnati, the report of the committee was accepted, the committee was continued and was directed to act jointly with the proper committee from the dealers' association to unite, if possible, on a uniform contract with the consumer, embodying the non-cancellation clause and the retention of title. The committee was authorized to employ legal talent. C. H. Besly, of Chicago, thought much could be accomplished toward remedying the cancellation evil by education, and to this end advocated a non-cancellation statement on all letterheads. Mr. Walter was of the opinion that most could be accomplished through the dealers, by whom the bulk of sales are made.

Excess Carload Shipments.

R. K. LeBlond, of Cincinnati, as chairman of the committee on freight charges, reported that practically nothing had been accomplished in securing a remedy for the excess carload shipment evil, although efforts had been made with various railway associations, with the official classification committee and with the interstate commerce commission. The committee was instructed to continue its work, and Secretary Montanus suggested that a campaign of education be undertaken, with the idea of stirring up a general agitation against this ruling.

Before the conclusion of the business session, the association, at the suggestion of the committee on resolutions, provided for the arbitration of any minor differences in the organization by adopting a resolution to this effect. In case any differences arise between members which cannot be adjusted by the interested parties, it is recommended that these be referred to an arbitration committee composed of one member chosen by each of the interested parties and a third by those already chosen, the decision of this body to be final. A rousing vote of thanks to President Eberhardt for his efficient work during the past six months completed the business of the meeting.

Cone on Trade Schools.

The privilege of the floor was granted to J. H. Cone, assistant secretary of the National Metal Trades Association, and in charge of the educational work of that organization, to present the outlines of the co-operative training course as practiced at the University of Cincinnati and in the shops of that city. He declared there was an imperative need of developing an enlightened public sentiment in relation to the labor problem, and pointed as evidence to the rapid spread of socialism and the tremendous cost of strikes to the industrial system of the country and the world. He pleaded for co-operation in this line of educational work and cited the success of united efforts of manufacturers in preventing the passage of unfair legislation.

The plan of education instituted at the University of Cincinnati is already familiar to the readers of THE IRON TRADE REVIEW. A complete review of the movement by Prof. Herman Schneider, dean of the college of engineering at that institution, was presented in the issue of Dec. 27, 1906. Mr. Cone reported that the same plan had been adopted by the Massachusetts Institute of Technology, by a 40 to 5 faculty vote, in connection with the works of the General Electric Co., at Lynn, Mass., and that the Armour Institute at Chicago was contemplating a similar course with the manufacturers of that city.

"Combining as it does the theory of the school with the practical experience of the shop," said Mr. Cone, "this plan of Prof. Schneider provides the broadest and most satisfactory method obtainable for properly equipping young men to become the heads of your departments, your superintendents and managers."

The West End Furnace Co., Roanoke, Va., is pushing the work of rebuilding its furnace and it is expected to have the improvements completed about the middle of July. The company will put its furnace in blast as soon as the construction work shall have been finished. The remodeled stack will have a capacity of from 150 to 175 tons daily.

CHANGES IN CUSTOMS LAW ADMINISTRATION.

A new bill (H. R. 17506), introduced into congress and practically passed except for a discussion by the conference committee as to salary, makes many appropriate changes in the statutes and administration of the customs laws.

Section 14 of the customs administrative act of 1890 was altered so that a protest may be filed within 15 days after the liquidation of the duties and not in 10 days maximum as heretofore. The bill provides that the general appraisers or a majority of them who decided the case shall upon motion of either party grant a rehearing if it is deemed proper.

Section 15 of the same act is amended so that in the future the importers or the United States may appeal within 30 days from the board's ruling to the United States circuit court, if no rehearing has taken place, or in 30 days from date of publication of the decision of such action, for a review of the question of law and fact. The parties in suit have to introduce all of their evidence before the board.

Another new feature is that the circuit court is vested with the power to remand any case before it on appeal to the board of general appraisers on motion and notice to the opposite party. The board shall take additional testimony if offered and return same to the court with certified statement of facts. The decision of the circuit court is final unless the district judge thinks the question should be reviewed by the court of appeals, but an appeal shall be allowed to the attorney general for the United States to the court of appeals whenever he shall apply within 30 days after rendition of the decision.

A further change is the addition of section 31 to the act which practically gives the general appraisers their positions for life and prevents their removal except after a hearing by the president for the following causes: Neglect of duty, malfeasance in office, inefficiency.

The bill as originally passed by the house gave an annual salary of $8,000. The only change by the senate was to make the amount $10,000. Another important section gives the members of the board all of the powers of the circuit court judges in preserving order, compelling the attendance of witnesses and production of evidence, and in punishing for contempt.

CLUBS ARE TRUMPS

AND MACHINERY MEN OF NEW YORK ENTER THE GAME.

No Room for Canned Grouches or Dead Ones—Auspicious Formal Opening in Commodious Quarters

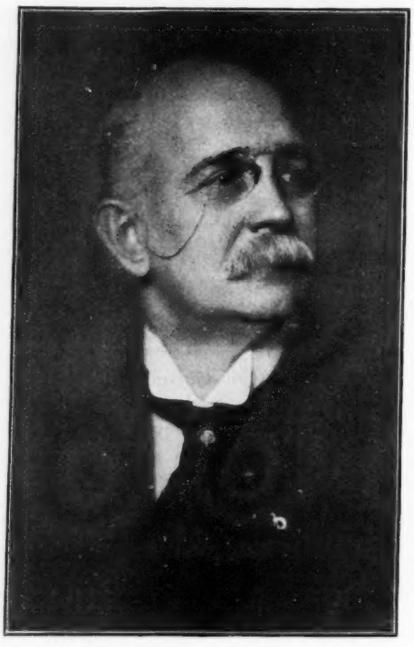
The formal opening of the Machinery Club of the City of New York on the afternoon of May 21 was the occasion of probably the most representative gathering of prominent figures in machinery and allied lines in the history of the industry. The commodious quarters of the club, the entire twenty-first and twenty-second floors of the Fulton building, 50 Church street, were thronged throughout the afternoon and the estimated attendance of 3,000 members and guests is probably not far from correct. Luncheon was served to the entire number without delay or confusion, evidence of the efficiency of F. E. Bedell, who came from the New York Athletic Club to assume the superintendency of the big down-town organization. A reception committee of over a hundred white-ribboned members saw that every guest was properly welcomed and introduced, and many were the congratulatory remarks over the magnificent manner in which the roomy quarters had been laid out and furnished.

George A. Post, president of the Standard Coupler Co., was delegated to perform the task of formally launching the club, "which," he said, "awaits the outpour to follow the application of its vocal corkscrew. For this occasion, that's me. After me, the deluge—of club delights." His further remarks were, in part, as follows:

In the business game, clubs are trumps. They are an absolute necessity in bringing men together under pleasant auspices, cementing friendships, affording conveniences for social entertainment, and providing places of rendezvous for commercial conference. By binding together with the ties of fraternity large numbers of active, influential and intellectual men who learn to know one another well, the asperities of business strife are softened. Unity of action upon matters of common concern can thus be speedily effected, and, radiating from congenial club circles, influences for the betterment of commercial conditions may permeate widely and deeply.

Into this field of beneficent social and commercial endeavor, the Machinery Club of the City of New York today makes its formal entry. It is the competitor of none; it is the coadjutor of all similar organizations. In this metropolis of our nation, with its millions of population, to which come daily scores of thousands of business and professional men upon errands of their craft, there is room—yes, there is need, for this club, and more like it. Here its members will find those conveniences that minister to their creature comforts. In its membership will commingle many of the men who make this city, state and nation great, and whose interests ramify throughout our country and foreign lands.

Its name is not intended to signify that its membership is restricted to those who are manufacturers of or dealers in machinery. It includes men in all kinds of occupations. It is like the Lawyers' Club, which is mostly made up of those who are not lawyers, or a Monday Club, which meets on Tuesday. The real reason, however, I suspect, for its name, is that it is intended to *go*. Machinery, if it is any good, *goes*. This club is all right, and it is bound to go.



F. H. Stillman,
President of the Machinery Club.

It is the hope and intention of the Machinery Club that it shall be known far and wide as a Mecca for those who seek good cheer. Let the tidings be spread abroad, that here within these walls, on Manhattan Isle, is Laughland. If there be those whose nerves are too sensitive, whose moods are too sour, or whose mien is too austere to withstand contact with "live wires," they are not beckoned to these portals. Here shall good fellows, with merry quips upon their lips and the thrill of enthusiasm in their handclasp, meet to eat, be sweet and merry. This club is not intended to be an emporium for the exploitation of canned grouches, nor as a mausoleum for "dead ones." It is a club for people with red blood in their veins, and who cultivate the habit of smiling. Its atmosphere is to be redolent of the joys of comradeship. With its rooms located high in the heavens, things hereabouts ought to be quite heavenly.

You will note that there is an utter absence of barbaric splendor and garish coloring in our scheme of decoration. In such simple surroundings our membership will be safe from the prurient intrusion of sleuths who hunt for evidences of predatory wealth. As we wander along the corridors or sit about the rooms that are guiltless of any wanton waste of the precious woods of the forests, we shall have the intense satisfaction of knowing that we are true exemplars of that great virtue of the "conservation of our national resources." You know the president, forty governors and a bunch of brilliant Americans have recently been reading essays down in Washington upon that subject. I am devoutly thankful that not one word has been wafted from the White House against the free and unlimited use of plaster. Patriots are we! Plaster for ours! We can look any old tree in the bark without a blush. We are neat, but not gaudy; we are proud, but not haughty. Our brightest ornaments will be our membership jewels, our greatest luxury the privilege of association with one another.

May the history of this club be a record of success and honor. May we who are enrolled among its thousand members in the beginning of its career long enjoy harmoniously its attractions and its advantages. Let us actively engage in the work of adding new members to its roster from among those who will give it strength and increase its social prestige. Let us hope that in future years, long after we who now attend its christening have lost our appetites for luncheon, the intrepid spirits who will then be doing momentous things in a New York greater than our fertile imaginations can now forecast, will gather about these tables, glad legatees of our work this day.

Gentlemen, the Machinery Club of the City of New York is now open! To our honored guests we accord an 18-carat welcome, and to the members we shout an exuberant "Hello!"

The Club's Formation.

The movement leading to the organization of the club owed its inception to the efforts of F. H. Stillman, of the Watson-Stillman Co., in appreciation of which the club has chosen him its first president. The movement was launched at a meeting held April 4, 1907, in the rooms of the Board of Trade and Transportation, where more than 200 interested members of the trade were present and an organization committee of 27 was appointed. The progress of the work since that date has been told from time to time in these columns. The membership list is now about 1,100, over 500 being resident members. Practically every city in the country is represented in the non-resident list and there are many from abroad. The honorary

list is limited to the president of the United States, the governor of New York, the mayor of New York City, the major-general commanding the department of the East, U. S. A., and the commandant of the Brooklyn navy yard.

The club is essentially a dining organization. The main dining room occupies the entire Church Street front of the lower floor and is furnished in East India mahogany. A large grill room is also on this floor, together with offices, check rooms and a large reception room. In the grill room is a large round table of Mexican mahogany, which is called the club's "Open Table." Here out of town members and others who have but a limited acquaintance in the city can find members who will join in conversation with them, without the formality of an introduction.

On the upper floor are several handsomely furnished private dining rooms, a ladies' dining room, a smoking room, writing rooms, barber shop, shower baths, the kitchen and service departments and three large roof gardens, commanding an exceptionally fine view of the city, the bay and the Jersey lowlands beyond the North river. The furnishings of the club are uniformly generous and in good taste, and the atmosphere secured is one of quiet, dignified luxury and ease.

Officers and Committees.

The officers of the club are F. H. Stillman, president; R. C. McKinney, vice president; Walter L. Pierce, treasurer, and W. Seton Henry, acting secretary. The board of governors is made up as follows: O. C. Gayley, Pressed Steel Car Co.; Geo. A. Post, Standard Coupler Co.; Walter L. Pierce, Lidgerwood Mfg. Co.; F. H. Stillman, Watson-Stillman Co.; C. A. Moore, Manning, Maxwell & Moore; H. L. Shippy, John A. Roebling's Sons Co.; T. N. Motley, T. N. Motley & Co.; Henry Prentiss, Prentiss Tool & Supply Co.; H. B. Kirkland, National Metal Molding Co.; W. P. Pressinger, Chicago Pneumatic Tool Co.; A. B. See, A. B. See Electric Elevator Co.; W. H. Marshall, American Locomotive Co.; R. C. McKinney, Niles-Bement-Pond Co.; E. H. Wells, Babcock & Wilcox Co.; W. L. Saunders, Ingersoll-Rand Co.; Otis H. Cutler, American Brake Shoe & Fdy. Co.; J. R. Vandyck, Vandyck, Churchill Co.; Kenyon B. Conger, Hudson Companies; Wm. B. Albright, Sherwin-Williams Co., and Chas. A. Schieren Jr., Chas. A. Schieren & Co.

The various important committees are as follows:

Executive—F. H. Stillman, chairman; R. C. McKinney, Walter L. Pierce, Geo. A. Post and Henry Prentiss.

House—T. N. Motley, chairman; Chas. A. Schieren Jr., Percy A. Ware, Geo. Howells and Edw. H. Benners.

Membership.—J. R. Vandyck, chairman; Geo. L. Gillon, Chas. B. Crook.

LAKE SUPERIOR MINING INSTITUTE.

The thirteenth annual meeting, which was postponed last year, of the Lake Superior Mining Institute, will be held on the Minnesota ranges, beginning Wednesday, June 24, and continue to Saturday, June 27. Local committees are now preparing the program and the members are assured an interesting trip over the ranges. The last meeting was held in August, 1902, and many changes have been made since that time. Members preparing papers to be presented at the meeting are requested to notify the secretary. The paper by Dr. B. W. Jones, on "Mine Sanitation," read at the Houghton meeting in 1905, proved very interesting, and it is suggested that the matter be further discussed at this meeting.

The subject of sampling ore at mines, and upper and lower lake docks is receiving much attention at present, and papers on this subject would be of great interest to the members. All members are invited to contribute papers and take part in the discussions.

The following is a list of papers already prepared for this meeting: "Sampling of Iron Ores," by Prof. L. S. Austin, Houghton; "Biographical Sketches," by J. H. Hearding, Eveleth; "The Standard Boiler House of the Oliver Iron Mining Co.," by A. M. Gow, Duluth; "Automatic Throttle Closing Device for Hoisting Machinery," by Spencer S. Rumsey, Duluth.

Plan is Operative.—Charles R. Brown, president of the American Steel & Iron Co., Norwalk, O., and one of the large creditors of the Norwalk Iron & Steel Co., and the William Kavanaugh Co., which failed last fall, has declared operative the creditors' agreement to settle the affairs of the two old companies. He declared recently at a court hearing that almost all the creditors had signed the agreement. This provides that $1,250,000 in bonds of the American Steel & Iron Co., shall be deposited with the Cleveland Trust Co. for security for the issuance of collateral bonds with which creditors shall be paid 75 per cent of their claims within four years. Creditors with claims aggregating not to exceed $300 will be given the option of 30 per cent cash payable July 1.

EMPHATIC LANGUAGE

Used by Massachusetts Manufacturers in Discussing Labor Conditions.

Boston, May 22.—There were some very frank utterances from the after-dinner speakers at the annual banquet this evening at the Quincy House of the State Association of Master Builders, which was attended by about 200 members.

Secretary William H. Sayward, of the Boston Master Builders' Association, said that in the building business, as in all business at present, the relation between employers and employed is the most serious question that arises. "The open shop," he said, "is the critical point in the whole controversy. We have allowed people to forget that there is somebody else than labor to be reckoned with. We should permit it to go no further. Every prospective legislator should be made to feel our power. He should be faced with the question as to where he stands on the open shop."

George B. Hugo, president of the Boston Employers' Association, was equally outspoken. "In the first place," said he, "we do not deny the right of men to associate and form a union. The objection is to the purpose of the organization.

"In the second place, the only solution of the question is the establishing of the open shop. Arbitration is an acknowledgement of weakness, conciliation proof of cowardice, and the Civic Federation is a political game to confuse the public mind.

"In the third place, we must cooperate. We are in the position we hold today because we are a parcel of moral cowards. The man who signs a contract with a union agreeing to employ only union labor is a traitor to his country and its free institutions. If he signs unwillingly he is also a coward. If he signs willingly or unwillingly, he is but paving the way of eventual destruction for himself."

New Bar Iron Mill.—The Phillamac Rolling Mill Co., Cincinnati, which has just been incorporated, has been organized by J. P. McCaslin and Alexander Lamont, of Sharon, Pa., and Myron Phillips, of Youngstown, O., all practical rolling mill managers. The company has leased the plant of the Brackett Bridge Co., at Glendale near Cincinnati and is installing machinery and equipment. The company contemplates the production of bar iron in 125 shapes and when the plant is placed in operation will employ 125 hands.

STATUE DEDICATED TO M. A. HANNA

A magnificent bronze statue of Marcus A. Hanna was unveiled in University circle, Cleveland, Saturday afternoon, May 23. Samuel Mather, chairman of the executive committee of the voluntary organization of subscribers, called the gathering to order. Eulogies were spoken by Secretary of War Taft, John W. Griggs, former attorney general of the United States, who was the formal orator of the day, and Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers. In the absence of Vice President Fairbanks, former Governor Myron T. Herrick acted as chairman of the day, and read a letter of regret from the vice president. Monsignor Houck pronounced the invocation. The flags were released from about the statue by Mrs. Ruth Hanna McCormick and Mrs. Mabel Hanna Parsons, daughters of the late senator.

STATUE TO M. A. HANNA AT CLEVELAND, UNVEILED MAY 23.

The monument is a splendid work in bronze, the last to be modeled by Augustus St. Gaudens before he died. With one or two exceptions, the fund of $65,000 was subscribed by Cleveland people or persons who had formerly made Cleveland their home. The bronze figure, in characteristic sitting posture, is 8 feet high, and the pedestal is 6 feet square and 8 feet high. Upon the pedestal is borne this inscription:

> TO MARCUS ALONZO HANNA
> this monument is erected by friends and fellow citizens commemorating his efforts for peace between capital and labor, his useful citizenship and distinguished public service.

In the course of his address John W. Griggs said:

It is not remarkable that Senator Hanna should have achieved conspicuous success as a captain of industry; what is remarkable and without a parallel is the fact that after spending all the years of his life down to the age of 59 in business pursuits without any conspicuous participation in political affairs he moved at one step to the very front of the political organization to which he belonged and became without dissent or contradiction its leader.

Secretary Taft in his tribute to the senator said:

I feel that it is presumptuous of me to add anything to these ceremonies. I cannot let slip, however, this opportunity to express my deep reverence for his memory and his many favors to me.

It has fallen to my lot to take some part in the building of the Panama canal. To Senator Hanna the United States is greatly indebted for the part he took in deciding where the canal was to go. It would have been a grave mistake had the other route been chosen.

MANGANESE ORE IN GEORGIA.

For many years Georgia has been one of the three principal manganese ore producing states of the country, the other two being Virginia and Arkansas. Manganese ore was first shipped from Georgia in 1866, the production being 550 tons, according to a preliminary report on the manganese deposits of the state by Thomas L. Watson, Ph. D., formerly assistant state geologist, which has been recently published. This early shipment was mined in the Cartersville district, Bartow county, which now yields nine-tenths of the ore mined in the state. The manganese ores appear to be limited to the northern portion of the state.

WAGES TOO HIGH.

Bar Iron Manufacturers Will Insist Upon Material Reduction.

The annual conferences for the determining of wage scales between the manufacturers and the Amalgamated Association of Iron, Steel & Tin Workers, will begin at Cambridge Springs, Pa., the week of June 1. The first conference will be with representatives of the Western Bar Iron Association, and the bar iron schedules considered. This will be followed by meetings with the officials of the Republic Iron & Steel Co., the American Sheet & Tin Plate Co., and, if necessary, with the independent sheet and tin plate makers.

There will be no material changes in the wage scale asked by the Amalgamated Association, the annual convention of that body at Youngstown having adopted practically the 1907-1908 scale. It is expected, however, that the manufacturers, particularly in bar iron, will insist strongly upon a reduction in scale prices.

The new continuous working agreement recently entered into between the Western Bar Iron Association and the Amalgamated Association will be in force at the coming conference for the first time. The new agreement facilitates the reaching of a decision between the mills and the men. In case the conference committees are unable to agree upon the scale, the matter will be referred to a sub-committee composed of three members from the manufacturers and the union, which will meet apart from the conference committee and endeavor to reach an understanding. Should such a result be attained, this will be binding upon both the employers and employes. If further conciliation is made necessary by a failure of the sub-committees to agree, a single conciliator will be called in to make a decision. This finding by the conciliator, however, is not binding, but must be referred back to the conference committees for ratification.

Among the several minor changes in the wage schedules adopted by the Amalgamated Association at its recent convention, was the amendment of foot note 11 in the tin scale to read "All tin and black plate shall be weighed by the company after being sheared and opened, and stickers are to be opened by the company." Foot note No. 24 was amended to read: "Twenty-five per cent shall be paid to shearman on all orders that are cut once on one shears, and then taken to another shears to be finished. When there is more than one size in one pack causing shearman to throw one cut or piece on the floor, that the company furnish a man to pick them up and place them on the bench for the shearman." The revision of clause 5 of the memorandum of agreement was adopted to read as follows: "All mills will be allowed to work three turns when practicable. On all mills working three turns, eight hours shall constitute a day's work. Rolling shall not start earlier than 5 o'clock Monday morning, and the week's work shall finish after the first eight hour shift on Saturday. On all mills working three turns, a third roller should be employed." This amendment eliminated the exceptions as to not beginning rolling earlier than 5 o'clock Monday morning, which appears in the present memorandum of agreement as follows: "Except by local agreement between men and management, any mills not equipped with traveling cranes for changing rolls; and in the event of traveling crane installation during scale year, prevailing practice at that time to be continued."

NEW RULE FOR SHIPPERS.

All the railroads east of the Mississippi river operating in the territory covered by the "official classification," will this week send out notices to their agents that on and after July 1, they will refuse to receive for transportation all shipments in less than car-load lots which are not plainly marked with the name of the consignee, and the station, city, and state of destination.

For many years it has been customary for a large number of shippers to mark their packages with an initial or some hieroglyphic, the key to which would be on the bill of lading. It was the theory that this saved time, and also prevented competitors from observing the names of a shipper's customers on the outside of the packages. Great abuses have resulted from this practice.

Some 416 railroads will participate in the enforcement of the new rule. The companies are to give very strict instructions to their agents, placards will be posted conspicuously in all stations, and every effort will be made to impress shippers with the importance of heeding the new rule.

Chandler & Farquhar Co., of Boston, gave a banquet May 21 at the American House in that city, with about 50 employes as its guests.

WALKOUT THREATENED.

San Francisco Machinists Say They Will Oppose Open Shop Rule.

(Special Correspondence.)

San Francisco, May 22.—The union machinists of California apprehend trouble; a long, bitter fight, as they put it, between the unions and the employers. The note of warning was sounded May 15. The delegates from the Machinists' Union to the San Francisco Labor Council reported to the council at its meeting, that corporations and firms employing machinists have given notice that they will refuse to renew the agreement with the unions, when the present agreement terminates, which will be very shortly. The union men express a determination to have the agreement renewed or walk out. The employers are equally determined to maintain the open shop and conduct business without dictation or interference from a business agent or union.

The shops of the two trans-continental railroads, with terminals in this city, are not likely to be affected by a walkout of machinists, as the shops have never been unionized. The large foundries and machine shops have maintained the open shop until one year ago. It was at the time of the strike of last year that the committee of the Metal Trades Association arranged terms of a settlement with a committee from the Iron Trades Council. It was the only instance in which the employers recognized the unions or their central council. The employers claim that the unions have become irksome, and they further charge the great loss of business to this city to union domination. The employers have perfected a strong organization throughout the Pacific coast, and feel that this is the time to cast off the yoke of unionism, and liberate the employer and employe from, what they term, irksome fetters. A strike at this time by the machinists would be of far less consequence than it was one year ago, because work in that line has fallen off during the past year.

The Lovell Iron & Metal Co., 541 Monadnock block, Chicago, has been organized by R. L. Lovell, to transact a brokerage business in iron and steel bars, iron and steel scrap and metals. Mr. Lovell has been identified with these trades for many years, having spent five years with the American Car & Foundry Co., and five years with the United States Metal & Mfg. Co.

DEATH OF CAPT. SAMUEL MITCHELL.

Capt. Samuel Mitchell, of Negaunee, Mich., one of the prominent mining men of the upper Peninsula, particularly in connection with the development of mines on the Marquette range, died May 10, of pneumonia, at the Streetor hospital in Chicago. The burial was from the Methodist church named after him in Negaunee, where he had lived since 1870, and the services were conducted by the Masonic order, of which he was a member. He was 62 years old.

Capt. Mitchell was one of the miners of the early days of the Negaunee district. Born in Devonshire, England, April 11, 1846, of rural parentage, he came to this country at the age of 18, obtaining work as a laborer at the Phoenix copper mine. For two years, he worked at various copper mines, going from there to Humboldt on the Marquette range to work as a miner at the old Washington mine. He was married while there and in 1870, went to Negaunee. There, he undertook a mining and teaming contract at the historic Jackson mine and in the course of a year made a similar contract at the Saginaw mine, which was then owned by Capt. John Mitchell and Messrs. Maas and Lonsterf. Through various advancements, Capt. Mitchell became manager of this mine when it was transferred to Cleveland interests and he continued in that position till the mine was closed in 1882. He bought the old Shenango mine, organizing the Mitchell Iron Mining Co., developed the Mitchell at Winthrop and in company with A. G. Stone, of Cleveland, opened the National mine on land bought from the Lake Superior Iron Co. Capt. Mitchell and his associates were also interested in Menominee range properties near Norway and later he developed the Blue mine at Negaunee.

Of particular interest is the connection of Capt. Mitchell with the Negaunee and Jackson mines. The Negaunee was developed by Capt. Mitchell, who is credited in the sinking of the original Negaunee shaft with putting down the first shaft in quicksand in the Lake Superior district. The shaft was completed only with great difficulty and the mine was operated by Mr. Mitchell until leased to the American Steel & Wire Co. for which Jos. Sellwood was superintendent.

In February, 1887, Capt. Mitchell gained control and the largest individual ownership in the Jackson mine. He was made president and manager of the Jackson Iron Mining Co. and continued in that capacity, actively supervising the working of the mine until it was taken over a few years ago by the Cleveland-Cliffs Iron Co. Capt. Mitchell also had much to do with the development and operation of the properties now controlled by the Montreal Mining Co. on the west end of the Gogebic range and he likewise had an interest in Vermillion range properties in Minnesota.

Like others of the wealthy mining men, he became interested in several banks and at various times had been connected with banks in Negaunee, Ishpeming, Hurley, Wis., Escanaba and Chicago. He is survived by a widow and nine children, his only son being Samuel J. Mitchell, of Marquette.

CHARGES FOR PRIVATE CARS.

At a meeting of the executive committee of the Individual Car Owners' Association held in Chicago, it was urged upon the association of transportation and car accounting officers that effective Oct. 1, 1908, the rate to be paid to owners of private cars shall be one cent per mile. On the subject of demurrage the committee adopted the following resolution:

"It is our conclusion that private cars owned by shippers and hired to carriers upon a mileage basis are subject to demurrage when such cars stand upon the tracks of the carrier, either at point of origin or destination of shipment, but are not so subject when upon either the private track of the owner of the car or the private track of the consignee. The carrier must charge demurrage in all cases where such demurrage is imposed by tariff provision upon its own equipment, except when a privately owned car is upon a privately owned siding or track, and the carrier is paying, or is responsible for, no rental or other charge upon such car; and a privately owned car, in the sense in which that expression is here used, is a car owned and used by an individual, firm or corporation for the transportation of the commodities which they produce or in which they deal."

The annual report of the Standard Screw Co. for the year ending March 31, 1908, includes these figures: Net profits, $512,137; other income, $2,046; expenses, $38,002; bonds and interest, $23,434; preferred dividends paid (6 per cent), $120,000; common dividends paid (6 per cent), $149,634; balance of surplus, $183,113, compared with $420,473 in the year previous.

CANADA PUTS ANTI-DUMPING TIN PLATE CLAUSE INTO EFFECT.

Tin plate, on May 1, by a ruling of the Canadian government, became subject to the "anti-dumping" clause, which reads as follows:

Whenever it appears to the satisfaction of the minister of customs that the export price or the actual selling price to the importer in Canada of any imported dutiable article of a class or kind, as determined according to the basis of value for duty provided in the customs act in respect of imported goods subject to an ad valorem duty, such article shall, in addition to duty otherwise established, be subject to a special duty of customs equal to the difference between such a fair market value and such selling price.

This action was delayed by the Canadian government out of deference to large consumers of tin plate in Canada, and to assure itself that the Canada Tin Plate & Sheet Steel Co., Morrisburg, Ont., has really been making tin plate in satisfactory quantities. As a result of the inrush of tin plates into Canada to avoid the provision, the prices fell below $3.50, and the 2 per cent advance above the base rate disappeared.

Metal Trades Banquet.—The second annual banquet to superintendents and foremen of Cleveland metal trades shops was given under the auspices of the Cleveland branch of the National Metal Trades Association, May 27, at the Cleveland Athletic Club. After delivering an address of welcome, President George Bartol of the Cleveland branch surrendered the chair to J. H. Dore, who officiated as toastmaster. James F. Barker, principal of the new technical high school, spoke on "Industrial Education;" F. W. Sibelin, general foreman of the machine shop of the Cleveland Twist Drill Co., on "Organization Among Superintendents and Foremen;" and C. O. Bartlett, of C. O. Bartlett & Snow Co., on "The Employers' View of It."

Baltimore Metal Trades.—The Baltimore branch of the National Metal Trades Association held its sixth annual banquet on the evening of May 12, at the Hotel Forbes. President Henry Kries, in taking the chair, said that the metal trades in Baltimore were in a flourishing condition. Guests of honor included Mayor Mahool, Gen. Ferdinand C. Latrobe, States Attorney Owens, Professor Francis A. Soper and Edward Adt. The mayor paid a warm tribute to the industry of the men engaged in the metal trades, as did the other speakers who made informal remarks.

BOOMS DO NOT ALWAYS MEAN PROSPERITY,

SAID SIR EDWARD GREY TO THE IRON AND STEEL INSTITUTE.

Iron Trade More Concerned in Peace Than in Making Engines of War---Andrew Carnegie Presents Another Gift---Bessemer Medal Conferred Upon Benj. Talbot, Who Pays a High Tribute to the Trade Press

Office of THE IRON TRADE REVIEW, Prince's Chambers, Corporation St., Birmingham, Eng., May 16.

The annual meeting of the Iron and Steel Institute was held in London on Thursday and Friday, May 14 and 15, at the Institution of Civil Engineers, Sir Hugh Bell, Bart., presiding. Unlike the meeting of last year, the event was not favored by fine atmospheric conditions, the proceedings commencing in typically wet weather. There was a fair representation of foreign representatives. The past president in attendance comprised Messrs. E. P. Martin, R. A. Hadfield, E. Windsor Richards; the vice presidents, P. C. Gilchrist, Sir J. G. Alleyne, W. Beardmore, with the following members of the council: A. Tannett-Walker, J. M. Gledhill, W. H. Hewlett, J. Riley, J. E. Stead, J. M. While, W. Evans, D. Colville, Sir A. Hickman, Bart., J. Ainsworth, A. Lamberton. Other prominent members present included: Earl Glentawe, A. Sahlin (Brussels), P. Brueil (Paris, Carnegie scholar), Prof. Turner (Birmingham), E. Parkes, M. P., E. Windsor Richards Jr., Karl Benedicks (gold medalist), W. H. Hatfield, A. Capron, with W. H. Bleckly, treasurer, and Bennett Brough, secretary.

The secretary read the report of the council, expressing its satisfaction that the year had been one of activity and progress. In addition to his Imperial Highness the Archduke Frederick of Austria being elected an honorary member, there had been added to the register 116 names, bringing the total membership to 2,100, as compared with 1,500 10 years ago. Particulars were given of a large number of high distinctions conferred upon members, which included the election of Dr. R. Raymond, an honorary member of the Canadian institute. There had been heavy losses by death, the obituary list comprising 34 names. The Institue continues to be financially prosperous, the receipts amounting to £6,454 and the expenditures £5,536. The autumn meeting at Vienna was largely attended and brilliantly successful. Twenty-one papers were contributed to the Institute proceedings during the year. It had been decided to reprint the first volume of transactions of the Iron and Steel Institute, of which the original edition was a very small one, long out of print and exceedingly rare. R. A. Hadfield, past president, represented the Iron and Steel Institute at the dedication of the building given by Mr. Carnegie as a home for the American Engineering Society of New York and presented an illuminated and congratulatory address to the Institute. The president has consented to serve as chairman of the sectional committee on iron and steel in connection with the Franco-British exhibition in London, and the committee of the council was making the necessary arrangements. The retiring members of the council who were offered for re-election were the following: W. Beardmoore, the Duke of Devonshire, Sir J. G. Alleyne, vice presidents, and A. Griner, G. Ainsworth, G. F. While, Illtyd Williams and J. M. Gledhill. The vacancy on the council caused by the election of Sir Hugh Bell, president, was filled by the election of John H. Darby, of Brymbo.

A New Carnegie Gift.

W. H. Bleckly, Warrington, the honorable treasurer, presenting his report paid a warm tribute to the generosity of Andrew Carnegie, who had munificently presented a further sum of $11,000, making, with his previous donation, a total sum of $100,000. The original sum was given for the foundation of research scholarships. The latest donation would be used to cover the entire cost and so free the Insti-

NEW QUARTERS OF THE IRON AND STEEL INSTITUTE.

READING AND SMOKING ROOM.

COUNCIL ROOM.

tute of all expenses in connection with research endowments.

The president, moving the adoption of the report, spoke with enthusiasm of the new premises to which the Institute had lately removed, and which would be found in every respect a great improvement. The library had been reorganized and a reading and smoke room had been provided. With regard to the Franco-British exhibition, he said that, in preparing the iron and steel section they had attempted to show why the pig iron industry throughout the United Kingdom was located in its present geographical way. He hoped that they had done justice to that department. It was impossible to speak too highly of the success of the Vienna autumn meeting or of the reception accorded at the hands of every authority in Austria-Hungary from the emperor downwards. They had recently heard with great regret of the sudden death of an old and trusted friend of the Institute, Dr. H. Wedding.

Joseph Adamson (Manchester) seconded the adoption in a humorous speech. John Bright's definition of happiness was "a congenial occupation with a sense of progress." The managers of the Institute from that point of view ought to be happy. The Institute was fulfilling its mission as a cosmopolitan institution for the benefit of everybody connected with the iron industry.

Mr. Beardshaw, in proposing a vote of thanks to the officers, said they were very proud that in their foreign excursions their leading officials were able to discuss things with foreigners in their own language. He believed those excursions were laying the foundation for international amity.

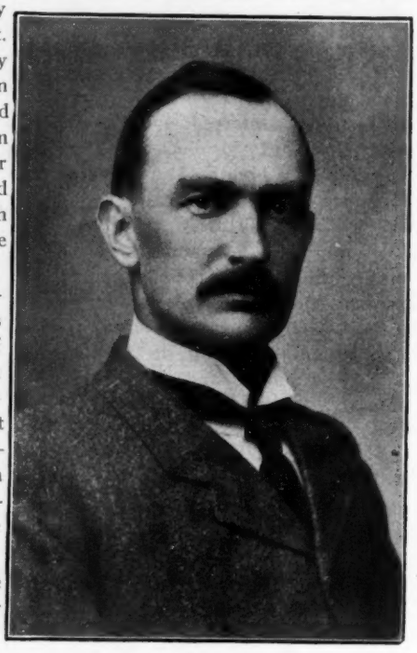
Prof. Gowland (London) seconded, and the resolution was carried with acclamation.

The scrutineers announced the re-election of all the retiring councillors.

Talbot Honored.

An interesting function followed in the presentation to B. Talbot, of Middlesborough, of the Bessemer gold medal. Mr. Talbot was given a hearty reception. He is well known to Americans, inasmuch as, though he now holds an important position at Cargo Fleet, Middlesborough, he was for 12 years works manager at the Pencoyd works, Philadelphia.

Sir Hugh said it gave him quite peculiar pleasure to have the honor of making that presentation on behalf of the council, and there was no higher honor which they could confer on their members, carrying with it, as it did, a recognition of services rendered to their great industry, and on no previous occasion had there been a worthier recipient. (Applause.) Mr. Talbot had exhibited all the qualities entitling him to honor. In addition to possessing the indispensable scientific outlook, he had what was, if possible, still more indispensable—practical knowledge and experience. The medal was presented not only because he had conducted a most interesting series of experiments on what seemed a somewhat remote scientific side of the industry, namely, that of segregation, but also because he had shown the direction in which everybody believed the industry ought to move in the future.



BENJAMIN TALBOT
Bessemer Medalist.

The way of progress was manifestly in the substitution of continuous efforts for periodic or spasmodic efforts. Illustrations of Mr. Talbot's contributions might be drawn from the open-hearth furnace itself, the work of which he had assisted in making continuous. Some time might elapse before the realization was secured, but the progress was in the right direction. The speaker concluded: "We present the Bessemer medal to Mr. Benjamin Talbot not only as an experimentor but also as a pioneer, and it gives me very peculiar satisfaction that it should have fallen to my lot to make this presentation. I have the honor to hand you the medal, with every wish for your continued success in the career you have chosen, and I hope I may have the pleasure of congratulating you again and again on the progress you are making in the direction I have indicated." (Applause.)

Tribute to Trade Publications.

Mr. Talbot acknowledged the gift with some emotion. He assured the meeting that he had great difficulty in finding adequate words to acknowledge the gift, which he should most highly treasure. It was most gratifying to have his work judged by those so competent to estimate its value. He would like to mention the cause which led him to commence the study of basic open-hearth processes. He was working in the Bessemer steel trade in the year 1886 in the Ebbw Vale Works, when his attention was first drawn to the process by a well-known member of the industry, through the reading of the paper delivered by Mr. Harbord upon the open-hearth process. The paper was reprinted in the *Ironmonger*, and it was not long before he had a small furnace working upon liquid metal. From that day to this, he had continuously endeavored to improve the production of basic open-hearth steel. He was glad to mention that, as it showed the great value of those papers, which were introduced to a much wider circle of readers through their reproduction in the trade papers. The services rendered by the trade publications could not be too highly esteemed. (Applause.)

After these preliminaries the conference proceeded to the consideration of a series of papers of which four had been set down for reading.

The first taken was by A. Lamberton (Coatbridge) on "Improvement in Plate-Rolling Mills."

(Abstracts of this and other papers and reports of discussion thereon taken by our Birmingham correspondent will be published in later issues of THE IRON TRADE REVIEW.—Editor.)

Carnegie Scholarships.

The secretary announced the result of the awards of Carnegie scholarships as follows:

Having carefully examined the reports sumbitted by last year's research scholars, the council of the Iron and Steel Institute has decided that the gold medal should be awarded to Dr. Carl Benedicks, of Upsala, Sweden.

The reports submitted by the eight holders of research scholarships are considered to be of sufficient merit to warrant their publication in full in the journal of the Institute.

Having carefully investigated the numerous applications received, the council has awarded research scholar-

ships, each of the value of £100, to:

T. Baker .....South Wales.
R. F. Bohler .....New York.
W. Giesen .....Mexico.
E. Preuss .....Germany.
L. P. M. Revillon.....France.

The president, in handing to Dr. Carl Benedicks the gold Carnegie research medal, heartily congratulated the doctor upon his success, remarking that the Institute was very grateful for his valuable work in connection with the testing of quenching velocities of steel, and the cooling power of liquids. They were well worthy of the extremely high traditions of metallurgy in Sweden, which was the classic home of iron investigations. The contributions from that nation were greatly valued. On the scholarships generally, they had every reason to be gratified with the results obtained. The awards had once more illustrated the cosmopolitan character of the Institute inasmuch as the countries representative were Sweden, United States, Mexico (the successful candidate there being a citizen of Austria-Hungary), Germany, Paris and South Wales.

Recipients of Honors.

The recipient of the Carnegie gold medal for research, Carl A. F. Benedicks, is a doctor of philosophy of the University of Upsala, Sweden, where he is lecturer in physical chemistry. He has had considerable practical experience in metallurgy and in electro smelting. He is a member of the Iron and Steel Institute and the author of numerous memoirs on iron carbon alloys.

The following are brief notes of the careers of the recipients of Carnegie research scholarships of the Iron and Steel Institute for 1908.

Thomas Baker, M. Sc., Assoc. I. C. (Llanelly, South Wales), was educated at Wolsingham Grammar School and at Durham University. He received his metallurgical training in the laboratory of John Rogerson & Co., and at Sheffield University. He contributed, with Prof. Arnold, to the Iron and Steel Institute a paper on the influence of silicon in iron.

Richard F. Bohler (New York) was educated in Vienna and Berlin, and received his metallurgical training at the Berlin School of Mines and at the Kapfenberg Steel Works. He has contributed papers to the Austrian Institute of Engineers and Architects and to the New York Academy of Sciences.

Walter Giesen (Mexico) was educated at Gladbach and Essen in Germany, and received his metallurgical training at the works of F. Krupp and Thyssen & Co., and at the technical schools of Hildburghausen and Carlsruhe. He is now manager of the rolling mills of the Monterey Steel Works, and has published six papers on metallurgical subjects.

Ernst Preuss (Darmstadt) was educated at Berlin and received his technical training at the works of the General Electric Co., Berlin, and as assistant to Prof. Martens. He is now superintendent of the laboratory for testing materials at Darmstadt, and has published eight papers on metallurgical subjects.

Louis P. M. Revillon (Paris) was

DR. CARL A. F. BENEDICKS.
Gold Medalist.

educated at the Paris Ecole Centrale, and is now director of the testing laboratories of Dion Bouton & Co., Puteaux. He is the author of a treatise on special steels (Paris, 1907).

The Annual Dinner.

As usual, the annual dinner at the Hotel Cecil was a brilliant function, its special feature being the strong representation of the principal industries and services, and particularly of railways and shipping. The members and guests numbered 355, under the presidency of Sir Hugh Bell, Bart., the company including Viscount Ridley, Sir Edward Grey, Bart. (secretary of state for foreign affairs), Lord Joycey, Lord Glantawe (Swansea), Lord Leith (Foivie), the Rt. Hon. Wharton (chairman of North Eastern Railway Co.), Sir Walter Runciman, Bart. (ship owner), Sir Wm. White, K. C. B. (naval architect), Sir Wm. Matthews, K. C., M. G., Archdeacon Sinclair, Herbert Samuel, M. P. (under secretary of state for the home department), Lt. General Baden-Powell, the mayor of Middlesborough, the master cutler of Sheffield, E. P. Martin, R. A. Hadfield, W. H. Bleckly, P. C. Gilchrist, F. R. S., A. T. Tannett-Walker, Dr. Carl Benedicks, Benj. Talbot, and Bennett Brough.

Various continental countries were strongly represented, the only element lacking, as compared with the meeting last year, being the strong representation which then attended from the United States. The speaking was generally of a high order, the most notable deliverance being that by Sir Edward Grey, the highly capable foreign secretary, who appears to be equally popular with both political parties.

Railways and Shipping.

The usual loyal toasts having been honored, Sir William White proposed the toast of "Railways and Shipping." Associating with it the names of the Rt. Hon. J. F. Wharton and Sir Walter Runciman, Bart. The speaker mentioned that this was a new toast specially introduced in honor of the visitors. They represented the two greatest national interests next to agriculture, both had immense importance upon the international relations of the world. Both were only temporarily quiet and would soon go forward with a greater success than ever. Although such industries abroad were in many cases nationalized or subsidized, this country was well able to hold its own against that and all other forms of competition. He was no believer in the decadence of England, and he thought English people were too fond of decrying themselves; they ought to blow their own trumpet a bit more. He had just come back from America, where he found the same spirit of self-depreciation which was neither wholesome nor satisfactory. But in this country particularly it was not wise to issue in British publications depreciatory statements which might be republished throughout the world. After a humorous reference to the slow traveling of the early railways, the speaker said they might still pride themselves upon carrying and building more than half the shipping tonnage of the world. But it was necessary to look at this matter imperially, and realize the room in our colonies for railways, and to remember that British capitalists would be better employed in developing their own dominions abroad than in helping other countries. (Applause.)

The Rt. Hon. J. Wharton, replying, warmly acknowledged the services of Lloyd George, the president of the board of trade, in averting a great strike of British railways. He thought the workmen would too much value their regular wages and their secure position to indulge in a strike. He hoped every one present would resist the tendency toward nationalization of railways, which was thought to prevail. Private control was better for the individual traveler and the general trader. If the president of the board of trade had to manage all the railways, he would be worth at least £10,000 a year. (Laughter and applause.)

Sir Walter Runciman said that it was true they were passing through a severe depression. But such periods were not an unmixed evil, because they compelled all to resuscitate the forces of their mind and do better in future. Unfortunately they had dear coal, dear provisions, dear insurance, dear everything; yet they were able to compete with the other nations of the world independently of subsidies. The ship owners certainly did not want subsidies. He believed before the autumn they would realize better times.

The American Presidency.

R. A. Hadfield, proposing the toast "Our Guests," welcomed the optimism of the last speaker. He thought that the settlement of the presidential contest in America would assist trade, but he might tell the Americans that whoever the new president might be, he would receive a most hearty welcome in this country. Speaking as "a man from Sheffield" interested in naval armorments, he wished Sir Edward Grey would get up a shindy (laughter and "Oh, oh!"). Of course, they must not have a shindy with foreign countries, but they might have one with the people of Mars. He hoped Sir Edward would remember that in Sheffield they had great industries assisting to protect the empire; yet although they had a huge budget of £160,000,000, they seemed afraid to build a ship or two. But they did not want the defenses of the empire to run down. They would be glad to hear of improving trade on the American side, and then no doubt there would be some improvement at home.

Viscount Ridley, M. P., in a humorous speech, complimented the members of the Institute on having created a second iron age.

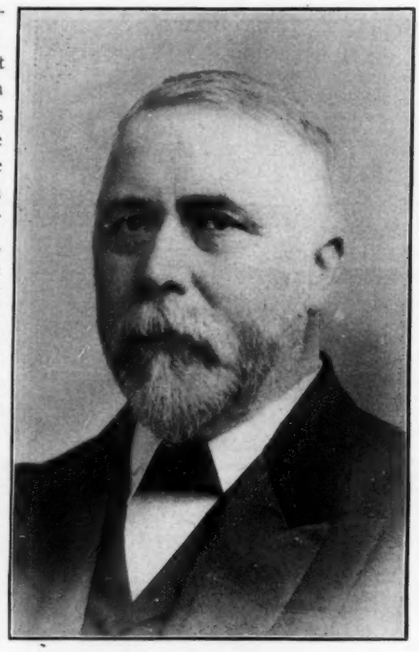
Lt. General Baden-Powell replied in a similar happy vein, and in a speech sparkling with wit and humor. He himself belonged to that little steel ring which was endeavoring to secure peace by being prepared for war. The speaker quoted the Scotch couplet:

Wae's the good of your store of gold
If you have not steel to guard it and hold?

He was especially grateful to the employers in the iron trade who had so generously and at some sacrifice to themselves encouraged their men to take service in the new territorial force.

The Institute Toast.

The toast of the evening, "The Iron and Steel Institute," was proposed by the Rt. Hon. Sir Edward Grey, foreign secretary. The industry was closely connected with all the most important branches of national life, and its prosperity was in some sense parallel to that of the nation. The Institute had done valuable work in encouraging invention, promoting research, and he valued especially its cosmopolitanism. But good relations both between employers and employed depended upon good feeling. The community of interest between employers and employed was fundamental, while the divergencies were superficial; but it was too often the case that the superficial was more obvious than the fundamental, and while the action of the intelligence was not without effort, the action of the feelings was spontaneous and continuous, and so good relations depended very greatly, not upon argument, but upon tone and temper. He had not noticed that either of the speakers had made any great demand for trade legislation. (Laughter.) What they wanted from the government was good and sound administration. They had it in Great Britain, though perhaps not in a sound and logical way—they never secured anything in a logical way. With regard to Mr. Hadfield's desire for a "shindy," the iron trade was more concerned in producing instruments of production and distribution than with engines of war. War might produce a boom, but a boom was not the same thing as prosperity, and while a "shindy" could produce a boom, peace alone would maintain prosperity. Engines of war would not reproduce capital, but would destroy capital. He regretted that the armaments of the nation were becoming greater, and the burden of that could only be maintained by borrowing or increased taxation, both of which absorbed capital, which was the spring of industry. While they were anxious to reduce their naval expenditure, that expenditure must depend upon the naval expenditure of other countries. The speaker concluded with reminiscences of his own happy associations both with Sir Hugh Bell and his father, Sir Lowthian Bell.



SIR WILLIAM WHITE,
One of the Guests.

Sir Hugh Bell, responding, said the Institute was to be congratulated on the distinguished and able speeches to which it had listened. The speaker called attention to the fact that for the first time the Institute attained the dignity of possessing a coat of arms. In the past they had been content with emblazoning its official documents with the head of a distinguished nobleman, the Duke of Devonshire. Now even a duke was not necessarily beautiful (laughter) and the Dukes of Devonshire could not be said to abuse in that direction. A duke's head was not necessarily an ornament, and the council had permitted him to put the Institute into possession of having the right to wear arms. The speaker proceeded to describe the emblematic decoration, of which the following is the official description:

"Sable buck's head caboshed, and, in chief, two hawks' bells argent on the chief rayonne. Or, the astronomical symbol of Mars of the first, and for the crest on a wreath of the colors, a miner's pick and gad in saltire sable."

Underneath is the inscription, "Faber, fabrum, adjuvet."

Sir Hugh proceeded to explain the various symbols in the heraldic idea. Black was the sign of the metal

iron. The stag's head represented the Duke of Devonshire, who was the first president. The heralds had been good enough to introduce bells on a shield, recalling the fact that his father, Sir Lowthian Bell, had much to do with the founding of the Institute, while the rayonne inflame pointed to the method by which they transmuted base metal into the precious metal they were all seeking. The sign of Mars was the alembic symbol of the metal of iron. The motto, which meant "the smith helps the smith," carried exactly into heraldic parlance what the society conveyed by its existence. It meant that "the iron master helps the iron master." He hoped they would all feel that they had been rightly guided in the selection of the arms. (Applause.) The mark of the industry was not war but peace, and from peace they would derive their prosperity. He regretted to see that a distinguished American a few days ago said that what the world wanted was more battleships and fewer statesmen; but he thought the rest of the world, if they were well advised, would hold no such opinion. But before beating their swords into ploughshares, they would be quite sure that the swords were no longer wanted. The speaker concluded with an earnest invitation to the meeting to attend the Middlesbrough gathering in May, when he promised all they would have a hearty welcome.

This concluded the proceedings.

Reorganization Under Way.—Walter K. Sharpe, formerly receiver but now trustee for the Wolf Co., Chambersburg, Pa., manufacturers of power transmission machinery aside from a general line of foundry and machine work, makes the announcement that while the company is not yet out of the hands of the court, money has been subscribed and a reorganization along lines which will make the company stronger than at any time in its history, is under way. Mr. Sharpe, as trustee, says the company is to be controlled by its former creditors, who convert their claims into preferred stock and all stock is placed in a voting trust for five years in order to insure the stability of the management.

The Baker Mfg. Co., Sioux City, Ia., manufacturer of gas and gasoline engines, is moving its factory from Sioux City to Wichita, Kas. The plant will be located in the building of the American Manufacturing, Storage & Sales Co.

BRITISH OUTPUT OF STEEL AND IRON FOR 1907 COMPARED WITH OTHER YEARS.

According to returns received by the British Iron Trade Association direct from the manufacturers, the production of Bessemer steel ingots in the United Kingdom for the year 1907 was 1,859,259 tons, against 1,907,338 tons in 1906, and 1,974,210 tons in 1905. The output of 1907 was 48,079 tons under that of the previous year, and 113,951 tons under the output of 1905. The production of acid steel ingots in 1907 was 1,280,315 tons, which is 26,834 tons less than that of 1906. The output of basic steel ingots for the year was 578,944 tons, which was 17,245 tons less than in the year previous. The production of Bessemer steel rails in the United Kingdom in 1907 was 832,576 tons, compared with 854,740 tons in the year previous, a decline of 22,164 tons. Steel bars were turned out from Bessemer works in 1907 to the amount of 321,138 tons; blooms and billets, 245,644 tons, and general merchant steel, 72,728 tons. The total production of finished steel was 1,556,548, a falling off of 63,639 tons, compared with the output of 1906. The total number of Bessemer converters in operation throughout the United Kingdom in 1907 averaged slightly under 56. An average of just over 11 were unemployed. All together, there were 18 different works engaged in the manufacture of Bessemer steel in 1907. Of these, five produced between 100,000 and 200,000 tons, while only one establishment produced over 200,000 tons.

The British Iron Trade Association also ascertained that the production of puddled iron in the United Kingdom in 1907, so far as the returns are available, was 975,083 tons, a decrease of 35,263 tons on the output of the previous year, but an increase of 36,525 tons over 1905. The number of puddling furnaces in operation in 1907 was 1,202, compared with 1,246 in 1906, and 1,261 in 1907.

The statistical report of 1906 showed that the total number of puddling furnaces left in the country was about 1,535. The production of finished iron and steel at finishing iron works in 1907 was 1,162,058 tons, compared with 1,184,811 tons in 1906, and 1,116,850 tons in 1905.

May Sell Steel Plant.—Upon the application of John R. Lee and William A. Arnold, receivers for the Passaic Steel Co., an order has been granted by Federal Judge Lanning at Trenton, N. J., to show cause why the Paterson plant should not be sold for the benefit of creditors. This order is returnable May 25. Counsel for the receivers state that the concern is losing money. During the four months in which the receivers have been in charge the total loss has been slightly above $54,000, but assets are placed at $1,087,262.99 above liabilities.

LAST YEAR'S TURBINE BUSINESS.

Retrospective of the development during the past year of the steam turbine, the accompanying figures reported by the Westinghouse Machine Co. are interesting as tending to controvert the general impression that the turbine business suffered heavily during the year. Although one month's business in 1906 still holds the record at 62,100 kilowatt, the year 1907 was marked by an average demand quite as large. As late as July, orders for 34,750 kilowatt were taken during that month as compared with 25,750 for July, 1906, which is a particularly gratifying showing. For the first nine months of each year the demand for turbines was as follows: 1907, 158,550 kilowatt, and for 1906, 152,400 kilowatt. Or, taking the middle six months of the year, from April to September inclusive, thus excluding the usual midwinter activity, as well as the late depression, the average per month is as follows. 1907, 15,833 kilowatt; 1906, 14,365 kilowatt. Thus it is apparent that up to the period immediately preceding the depression of October the demand for turbine equipment shows a steady increase. It is interesting to note in this connection, the ultimate results of commercial activity of the past few years. Had the business of the company kept on increasing at the same rate as prevailed during 1904 and 1906, the year 1910 would have been marked by an annual output of 1,912,000 kilowatt or the rate of 160,000 kilowatt per month.

The Iron City Steel Co., Bessemer building, Pittsburg, has taken the agency in the Pittsburg territory for the Glen Cold Blast Charcoal Pig Iron Co., of Glen Iron, Pa., now operated by John T. Church.

The Peerless-Connellsville Coke Co. has started operations at its coke plant at Alverton, Pa., after a shutdown of several months. The plant consists of 32 ovens.

A MODEL MUTUAL BENEFIT ASSOCIATION.

Nearly 25 years ago Samuel E. Doane became impressed with the frequency of subscription papers circulated in the plant where he was employed. Almost every misfortune befalling a workman was made the occasion of "taking a paper around" and the practice became so general that, aside from proving an inconvenience and annoyance to the employe, it led to gross abuses, the undeserving profiting at the expense of those whose claims possessed real merit.

Mr. Doane hit upon an employes' organization as the most satisfactory remedy. That organization is still in existence as the Hartford Machine Screw Co. Mutual Benefit Association, and Mr. Doane is now superintendent of that extensive plant. Aside from its long career and the large proportions which it has assumed, the association is a model of its kind and possesses some novel features worthy of adoption elsewhere.

This association now has enrolled some 350 members, paying 25 cents each per month, and its bank balance is frequently up in the thousands. Its affairs are administered by a board of nine directors chosen annually, and the executive officers, president, vice president, secretary and treasurer, are elected by this body. The president appoints the committees and has in his possession the bank book, but the directors have the appointing of a sick visiting committee, an investigating committee and an auditing committee. The secretary collects the dues and the treasurer is empowered to invest the association's funds, subject to the approval of the directors. Both the secretary and treasurer are bonded.

Only male persons who have been in the company's employ at least three months are eligible to membership, and each case is passed upon by the investigating committee before admission is granted. There is an initiation fee of $1 and the monthly dues are 25 cents. Any member in arrears for dues more than one week is suspended from all benefits and can not be reinstated until two weeks after settling all arrearage. Any person who has withdrawn from the association "without any intent of injuring same" can be reinstated in the same manner as his original entrance.

The benefits provided for are $6 per week for a period not to exceed 10 weeks' inability to attend to duties in any 12 successive months, and the payment of $50 in case of death. The constitution of the association contains a clause excluding from such participation in benefits anyone suffering from the results of intemperance or vice. Any application for assistance must be accompanied by a physician's certificate and bear the endorsement of the sick visiting committee. When receiving benefits, no member shall leave his residence before 6 a. m. or remain away after 8 p. m. during the summer, or before 8 a. m. or after 6 p. m. during the winter, without the consent of the attending physician. When absent, he shall leave word where he has gone and when he will return, for the benefit of the sick visiting committee. Any member failing to pay all debts charged against him in 60 days from date of various entertainments, excursions, etc., given by the association, is dropped.

The association has accomplished what it set out to do—stop the circulation of relief papers through the shops. Furthermore, it has provided the opportunity for social life among the employes, through the medium of lectures, etc., in the restaurant at the plant. Every year it takes the largest excursion going out of Hartford, usually two trains being required to carry the members and their families and friends. Among the instances of unusual relief granted is the case of a member who was in straightened circumstances, with a family to support, and who was suffering from a nervous complaint. His physician advised that he return to his old home in Sweden for recuperation, and the association made this trip possible, with the result that he came back in a few months completely restored in health.

The existence of this organization has undoubtedly been an important factor in maintaining stable labor conditions at the Hartford plant. Once, when the nine-hour day was the issue and the machinists of the entire city went on strike, the employes at this plant went out, but this is the only strike in its history. The attitude of the workmen toward the officers of the company may be surmized from their presentation, at the dedication of the new factory building a few months ago, of a large silver loving cup to Philip B. Gale, vice president and general manager.

The Holland Furnace Works, Holland, Mich., which recently suffered from a fire, is resuming work in all departments. The repair work following the fire has been hurried along and is about completed.

GOOD GRAIN CROP

Brings Promise of Better Business Conditions in Canadian Northwest.

Toronto, Canada, May 25.—L. L. Anthes, of the Toronto Foundry Co., returned a few days since from a two-months trip through the Canadian northwest, where he found that so far conditions for a good grain crop have been excellent, and that as soon as this is assured the accumulated stock of agricultural implements will find a ready market. The demand for building supplies is slack, as yet, excepting in Regina and Edmonton, where heavy expenditures by the provincial governments have given an impetus to trade, and at Saskatoon, an important railroad center, where construction is being actively pushed. The outlook for structural steel later in the season is excellent.

The Canadian Iron & Foundry Co., at Fort William, Ont., has its plant in good running condition and is working on large contracts to supply the city of Winnipeg with iron pipe.

The P. L. Robertson Mfg. Co., Hamilton, Ont., has purchased a site in Milton, Ont., for the erection of a branch factory in that town, where it will manufacture the Robertson patent headed screw and other articles.

The Pittsburg Perfect Wire Fence Co. has leased a portion of the old Hoepfner works in Hamilton, Ont., and will immediately open a Canadian branch employing about 30 men at the outset. This makes the fourth wire fence manufacturing company in Hamilton.

The village of Chippewa on the Niagara river, has granted a site of 10 acres of land to the British-Canadian Smelters, Ltd., of Toronto, which will establish a plant there for the treatment of Cobalt ores, employing over 50 men at the first.

The provincial government of Nova Scotia has appointed Rev. Principal Magill, of the Halifax Presbyterian College; D. W. Robb, of the Robb Engineering Co., Amherst, and Henry McDonald, of Grace Bay, a commission to inquire into the feasibility of an eight-hour day in industrial occupations, more especially manufacturing and mining. They will consider the effect it would have as regards competition with other communities where such restrictions are not in force. The commission will visit important industrial centers in August and take evidence.

INSTALLATION OF UNITED STATES STEEL SHEET PILING, POPE BUILDING, CLEVELAND

As the tonnage of steel produced increases from year to year and as the multiplication of plants continues, the uses to which consumers are able to put steel also increase and every month finds the attention of the steel manufacturers turned to some new outlet for the added capacity of their plants. One of the newer uses of steel which is attracting a great deal of attention and one which seems to offer possibilities for a large tonnage in the future, is that of steel sheet piling, an interesting example of which has recently been completed in the foundation for the A. A. Pope building, Cleveland, near the junction of Euclid avenue and Huron road southeast. In this instance, as in so many former cases, the use of steel brought a ready solution to a building problem of no mean proportions and enabled the builders to effect a great saving in cost without sacrificing any of the features especially desired by the owner.

An unusually deep basement was considered an essential to the building in question and the problem which presented itself to the architect, was that of keeping out the water from a very thick and active vein of quicksand while the excavation for this deep basement could be completed and the foundation walls and grillage beams put in place. Various methods were given consideration. It was found that the cost of putting in the foundations under compressed air would be prohibitive and it was therefore determined to enclose the entire excavation in a large cofferdam going through the quicksand and penetrating into the hard clay below. On account of the depth of the penetration however, and the nature of the quicksand, it was apparent that wood sheeting could not be used, so it was decided to employ steel sheet piling, the type chosen being the United States 35-pound section, manufactured by the Carnegie Steel Co. The contract for all the basement work up to the curb line was let to T. B. Bryson, 60 Wall street, New York, who undertook to build this great steel cofferdam by means of the Carnegie Co.'s sheet piling, the driving of which was sublet to the Great Lakes Dredge & Dock Co. of Cleveland.

FIG. 1—VIEW OF EXCAVATION OF POPE BUILDING, SHOWING THE INSTALLATION OF UNITED STATES STEEL SHEET PILING ABOUT 75 PER CENT COMPLETED.
Driver No. 1 working along party wall on east building line.

The vein of quicksand was discovered about 20 feet below the curb line and extended to a further depth of 27 feet. Below this was a hard blue clay. The entire lot was first excavated to a depth of about 4 feet above the top of the vein of quicksand and the first pile driver was let down into this excavation together with the steel sheet piling which was furnished in 35-foot lengths. The pil-

ing then was driven from a point about 16 feet below the curb line, passing first through about 4 feet of water sand, then the vein of quicksand, 27 feet thick, and finally penetrating 4 feet into the hard clay below, making a complete penetration into the ground of 35 feet. The unusual depth of the penetration, the great size of the cofferdam required—approximately 100 x 200 feet — and other local conditions encountered, make this installation of steel piling one of unusual interest.

Work was commenced August 20, 1907, with one drop hammer, beginning at the middle of the west side of the building and working south toward Huron road. After a few days this hammer was changed to steam and on the balance of the driving, steam hammers were used altogether, with the exception of a portion of the work along the east side. During the early part of the job, when the first hammer was working along the west side and along the Huron road end, the greatest number of difficulties were encountered, these being chiefly due to the fact that the crews of the drivers were entirely unfamiliar with the material in use and it was difficult for them to learn that the driving of steel piling requires somewhat different methods from those ordinarily employed in driving wood sheeting. The Carnegie Steel Co. early put a representative on the work and kept one there during its entire progress for the purpose of straightening out difficulties and indicating the methods best adapted to the work in hand. And so by careful watching and the exercise of great patience, the crews were gradually accustomed to the new order of things and before the end of the job did some very good driving. During the time when the first hammer was working along Huron road a water jet was tried but it did not prove entirely successful and was abandoned, practically all of the piling being driven without the use of the jet. Other experiments were tried along this side, such as the use of toggles and blocking, but most of these were found later to be unnecessary and were given up.

When the first hammer had completed the Huron road end of the work, it was turned north on the east building line and on this part of the work was operated as a drop hammer. This was necessitated by the fact that the piling had to be driven within 8 inches of a party wall and there was not sufficient clearance for the use of a steam hammer. The greatest care had to be exercised to get the piling down straight on this part of the job and while it was necessarily somewhat slow, the work along this side proved, upon excavation, to be some of the best done on the entire job. In addition to the cramped quarters allowed for the driver along this side, the soil proved to be harder than at any other point on the work and at times progress was only made at the rate of less than one-eighth of an inch to the blow. However, this side was eventually completed in a very satisfactory

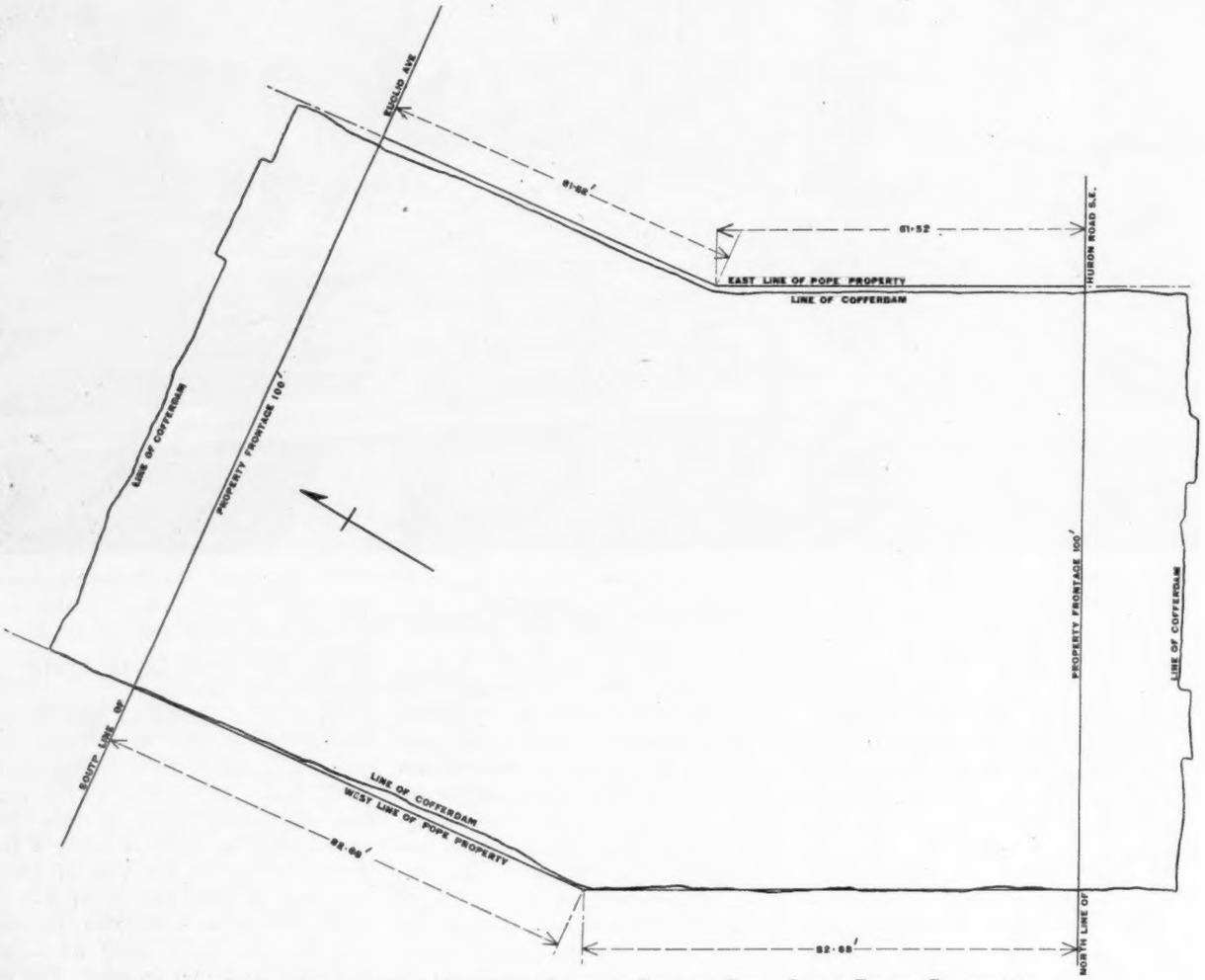


FIG. 2—GROUND PLAN OF POPE PROPERTY, SHOWING LINE OF STEEL SHEET PILING COFFERDAM.

FIG. 3—NEAR VIEW OF STEEL SHEET PILING AS DRIVEN ALONG HURON ROAD END.

FIG. 4—CLOSE VIEW OF THE STEEL SHEET PILING ON EUCLID AVENUE END.
Shows twisted rods in place for the completed concrete wall which was later built inside the line of steel piling.

manner and displayed less tendency to leak than the work on any other part of the job.

Soon after the first hammer had turned north on the east building line a second hammer was introduced operating under steam and beginning on the west side at the point where the first beginning was made, working from there in a northerly direction towards Euclid avenue. Connection was made with the first pile driven by means of a tee rail, the flange of which was chipped off so as to fit inside the jaws of the first pile driven. This piece of rail was driven to place and the next pile was entered over it. On this part of the work along the west building line the fastest driving was done, the conditions being unusually favorable, the soil being found softer than at other points and the crews having by this time obtained a more complete knowledge of the proper methods for handling steel piling. In a single day this hammer drove 25 piles to the full length of 35 feet which was the record performance and was considered very good, and when the excavation was completed it was found that this portion of the piling which was so rapidly driven was as tight and good a job as that along the east building line where progress was very slow and such great care and patience were exercised to prevent any mishaps.

When the second hammer reached Euclid avenue it was set up on a staging about 12 feet high and along the Euclid avenue end of the building the driving was done from this staging, the piles being entered and driven down till their tops were level with the staging or about 12 ft. higher than the point to which they were finally to be driven. After the entire Euclid front had been driven down this far the hammer was taken back over the same line and by means of a follower the piling was driven down to the depth required. This method of driving was put in use for two reasons: 1. There was great danger of a serious cave-in on the Euclid avenue end which it was thought that this method of driving would prevent. 2. It was thought that in this manner a truer alignment could be maintained and there would be less liability for the piles to pull apart in driving. The work of the two drivers was brought together near the corner of Euclid avenue and the east building line, completing the circuit of the building.

After this the excavation was begun and as it was carried down Mr. Bryson put in a system of heavy timber waling and bracing in horizontal tiers about 4 to 6 feet apart, extending clear to the bottom of the final excavation and centering on large, round, wooden piles, driven at intervals in the central part of the excavation. This bracing held the steel cofferdam in place until the permanent walls and interior structure could be built. The waling timber used was 12 x 12 inches and the bracing was put in on about 8 feet centers. During the progress of the work a single centrifugal pump, discharging about 275 gallons per minute, was used but it was not found necessary to operate it continually.

FIG. 5—WEST BUILDING LINE OF POPE BUILDING.
It was along this side that the fastest driving was done and the installation was unusually successful in its freedom from leakage.

Where caulking was necessary, oakum was used and was found satisfactory.

The results obtained on this job have proven the efficiency of steel sheet piling for works of this character, as by its use the builders were able to construct a practically water tight cofferdam of great size extending completely through the vein of quicksand and 4 feet into the hard clay below, thus making it possible to excavate and set grillage beams and build outside foundation walls at much less cost than would have been possible under the pneumatic caisson system. As to the various methods of handling and driving steel sheet piling it is impossible to lay down any very exact rules owing to the fact that the nature of the work is nearly sure to be entirely different in different cases. In the present case, for instance, it is almost impossible to say whether the results obtained by the steam hammer were better than those obtained by the drop hammer or vice versa, as the best work on the job was about equally divided between the two methods and the method which would produce the best results in one place might fail utterly in another place. But there is no question about the general adapability of steel sheet piling to works of this character and the future will, we believe, find its use spreading rapidly in all manner of cofferdams, ditches, and locks, and especially in cases like the Pope building, where a large open excavation makes it possible to handle the setting of foundations much more economically and rapidly than can possibly be done under the compressed air system.

FIG. 6—GENERAL VIEW, SHOWING COMPLETED INSTALLATION OF STEEL SHEET PILING AT THE POPE BUILDING AND THE COMPLETE SYSTEM OF WALING AND BRACING INTRODUCED.

Dismantling Furnaces.—Work has been begun on the dismantling of the two old blast furnaces of the Lehigh Steel & Iron Co. at Allentown, Pa., which have been out of blast for three years and have been sold to Frank Samuel, of Philadelphia. One was built in 1869 and the other in 1872, and they were rebuilt in 1886. Some relining was done last year with the idea of putting them again in blast, but the plan was abandoned. They belonged to the estate of Wm. H. Ainey and had an annual capacity of 57,000 tons of pig iron.

METHOD FOR DETERMINING AMOUNT OF DIRT IN BLAST FURNACE OR OTHER GAS.

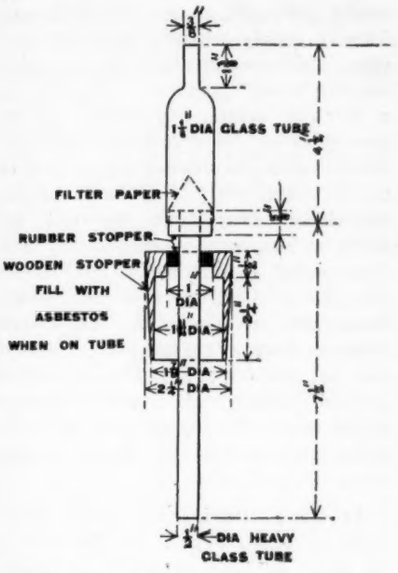
A nine centimeter filter is folded so as to fit inside the large glass tube in the shape shown in the sketch; the rubber stopper on the glass tubing fitting inside the filter presses it to the side of large glass tube, thus making a tight joint. The wooden stopper through which the glass tubing passes is hollowed out to make it more pliable; also to give more heating surface to the glass tubing and thus preventing the separation of moisture in the tube. A little asbestos is put in the bottom of the stopper to keep the heat from the rubber stopper.

The stopper is placed in a 2¼-inch hole in the gas main where the sample is to be taken, care being taken to get it straight so that the flow of gas passes the end of the glass tubing, which must be straight and smooth.

The end of the tube with the filter in it is connected to an aspirating bottle with rubber tubing. One cubic foot of gas is drawn through the fil-

ter in about 25 minutes. The filter is taken out of the tube, dried and weighed. The difference between this and the weight of the filter is the amount of dirt in one cubic foot of gas. If any dirt collects in the glass tubing on its way to the filter, this must be added to the filter before it is dried and weighed.

The filtering tube can also be connected to a gas meter which is operated by a small suction pump, the meter running at the rate of about 3 cubic feet per hour. By this means



INSTRUMENT FOR DETERMINING DIRT IN BLAST FURNACE GAS.

a test lasting several hours can be made. This gives a much better average amount of dirt in the gas. When making a long test, the tube with the filter in it must be kept warm (this can be done with one or two 16-candle power electric lights) so as not to allow the gas to be reduced in temperature to the dew point, as moisture would then separate and clog the filter and burst it.

This method was worked up under the direction of E. L. Messler, general superintendent at the blast furnace department of the Jones & Laughlin Steel Co., by Frederick Brinker, assistant chief chemist. After two years' trial this method has been found to check closely with actual practice.

The Fargo Foundry Co., Fargo, N. D., has been awarded the contract for furnishing the structural material for the new hospital for the insane at Jamestown, N. D. This is one of the largest orders for structural material ever placed with a North Dakota company.

PRODUCTION OF MALLEABLE CASTINGS--IV

A Discussion of Malleable Mixtures and the Materials Required Including Pig Iron and Various Classes of Scrap

BY RICHARD MOLDENKE

The proper mixing of the irons going into a charge for malleable castings is of course the foundation of the whole subsequent work. With a mixture properly made, it then becomes a question of regularity in melting and annealing. It is a well known fact, that with everything in this direction running properly, a malleable mixture can stand some additions of odd gray iron scrap, steel shafting, old files, etc., and not run "off." When, however, the mixture is just on the line between good and bad, it takes the most careful nursing to recover normal conditions. This is due to the large proportion of sprues and scrap hard castings that must be cared for, and which carry to each successive heat all the bad characteristics of previous melts which may have been damaged. Before the science of mixing was understood, it was customary to remove every piece of hard scrap from the foundry, when trouble occurred, and to begin all over with a heat of all No. 2 pig irons. This was pigged and then used in place of the sprues for the mixture in the regular way. After a few heats, the old troublesome sprues were then fed in very carefully, or else used for making annealing boxes by running them through the cupola.

Necessary Materials.

It is first necessary to discuss the various materials entering into the mixture. These include pig iron, sprues and discards, annealed scrap made by the establishment, annealed scrap bought or taken in trade, steel scrap, wrought iron scrap, borings, cast iron scrap, and the ferro-alloys.

As all these materials have their bearing on the finished casting, and should be used only as they affect this, it will be desirable to give the composition of good malleable castings at this time. This is as follows:

	Per cent.	
Silicon	from 0.45 to 1.00	
Manganese	up to 0.30	
Phosphorus	up to 0.225	
Sulphur	up to 0.07	
Total carbon	above 2.75	(in the hard)

This is normal malleable for American practice. In special cases, especially for very small castings, the silicon may go up as high as 1.25 per cent, while for very heavy work it may drop down to 0.35 per cent with very good results. In the case of charcoal iron this figure gives the strongest castings. With coke irons, however, especially when steel scrap additions are the rule, 0.45 should be the lower limit, and 0.65 is the best silicon for all-around medium and heavy work, such as is the case for railroad castings.

Manganese.

The manganese may go up a little, but this is not generally advisable, because manganese burns out first in a mixture, and costing money as iron when bought, simply adds to the melting loss. Moreover, with high manganese, there appear annealing difficulties. The above is written advisedly, for one hears many stories of 2 per cent manganese pig iron used successfully in the malleable foundry. Investigation always shows only a limited amount going into the mixtures, the consequent dilution through a large bath poor in manganese wiping out this apparent excess. It may be claimed that high manganese neutralized some of the sulphur by removing it into the slag, but it is far better to begin with low sulphur in the first place, as prevention is better than cure.

Phosphorus.

In phosphorus and sulphur we find the line demarking American from European foundry practice. Whereas we require our phosphorus not to exceed 0.225 per cent, and prefer it as low as we can get it without, however, paying for specially low amounts. European practice has this element as low as we do for acid steel castings. When the first coke irons were introduced into malleable foundries, it was a question whether the comparatively low phosphorus they contained would not militate against proper fluidity on the part of the heat. This proved not to be the case, and hence the irons with phosphorus somewhat above the Bessemer limit of 0.10 per cent are the rule today. As charcoal irons, however, run up as high as 0.225 per cent and are first class for malleable work, the upper limit is as given.

Sulphur.

In the consideration of sulphur we find the surprising fact that Europe makes malleable castings successfully with this element as high as 0.40 per cent, whereas we aim at one-tenth

that amount, or 0.04 per cent. Nevertheless, if the sulphur runs as high as 0.07 per cent in the castings we let it pass, and instances have been known in this country of castings being shipped with 0.23 per cent sulphur, but they were certainly beneath all comparison with honest malleable.

We, therefore, call for not over 0.05 per cent sulphur in our pig irons, in order that in making our work we can anneal to the black heart. This is impossible with the European high sulphur irons, where a long anneal at very high temperatures brings about the removal of the carbon by the entrance of carbon monoxide to carry it off, as shown by Dr. Wuest, a German authority on malleable practice. With us, the carbon passes out from the outer portions of the casting in probably another way. The high sulphur in European malleable also accounts to some extent for the comparatively low strength when contrasted with our product. Their castings being all very light, so long as they bend and twist properly, the purpose is served, and hence until heavier castings become the rule instead of the exception, "white heart" and steely looking fractures will remain the characteristic feature of European work.

Total Carbon.

Total carbon is placed at 2.75 per cent in the hard casting, as below this point there is likelihood of difficulty in annealing. The exact point will naturally vary with conditions. Thus with high percentages of pig iron, the total carbon can drop a little, while with heavy scrap and sprue ratios, 2.75 per cent cannot well be lowered and give safe results. The dropping of the total carbon being entirely accomplished by steel additions carried through a succession of heats, a line can be kept on the work, and the mixtures held within safe limits. For that reason it is not necessary to specify total carbon in pig iron for malleable purposes, a scrutiny of the other ingredients quickly showing whether an iron is an "off" grade. Such irons have no place in the malleable foundry even as a gift, if the highest grade of castings are to be produced.

Pig Iron Specifications.

The specifications for pig iron would therefore run as follows:

	Per cent.
Silicon	0.75, 1.00, 1.25, 1.50, 1.75, 2.00, as required
Manganese	not over 0.60
Phosphorus	not over 0.225
Sulphur	not over 0.05

The lower the sulphur the better. Manganese should run about 0.40 per cent, not very much lower and not above 0.60 per cent, unless purchased with a knowledge of its analysis, and one should see that no more gets into the mixture than will give an average of not more than 0.40 per cent when charged.

Silicon.

Works making heavy castings almost exclusively, specify their silicon to include 0.75 up to 1.50 per cent. Makers of very light work take 1.25 to 2.00 per cent. It will probably be safe for every one to have all the above silicons, but in quantity only as needed. The upper and lower limits, though perhaps not needed once a year, are desirable for emergencies, and need only be kept for that purpose. The time for the large malleable establishments to carry thousands of tons of metal in reserve for such occasions has passed away, except perhaps for those who have not yet learned to mix by analysis. They will keep on paying out good interest on their metal which rusts in the yard.

Pig Iron.

In receiving pig iron from the furnace, as a general rule only the silicon and sulphur need be watched closely. The manganese and phosphorus run pretty steady so long as the furnace is burdened the same way. The writer desires to pay tribute to the furnaces whose products he has used to the extent of hundreds of thousands of tons, never having had to reject a car load. Occasionally the analysis would be not what was desired, but an adjustment of price was quickly made, and the iron went in, a few pigs at a time, scattered over many heats.

Once, therefore, a furnace has been found to send reliable analysis cards with each car, the iron is piled in its respective place and fused, pigs being taken for analysis while this is being done. The silicon is made from these, and every so often the sulphur also. Manganese and phosphorus are taken only occasionally, unless the shipments are noticed as not being normal due to the furnace running "off." In that case, attention must be given to everything. This, however, rarely happens, and the furnaces are particularly careful not to sin by shipping bad iron to a works with a laboratory and brains behind it.

Piling the Iron.

It will be seen that by specifying everything within an upper limit except silicon, and giving that exact, the piling of the iron and its subsequent use becomes a very simple matter. Take for instance a foundry which specifies 1.00, 1.25 and 1.50 per cent only, though having a little of the others on hand for emergencies. This foundry will only have three general piles for every brand it purchases. It is no longer necessary to keep every car load apart, in fact the writer holds this to be very bad practice in the malleable foundry. Say a car load of iron comes in with 1.35 per cent silicon. This should go on the 1.25 per cent pile, the pigs being laid on the ground in a long row, or several rows, as space permits. The next car may contain 1.55 per cent silicon. This would similarly go on the 1.50 pile. Then a car is received with 1.15 silicon. This goes on the 1.25 pile again, the car being spread over the first in a row as before. Gradually, as the cars come in, about 10 points being allowed below the desired figure, and 15 points above, the piles grow in height, and in drawing from the end for charging purposes, an exceedingly uniform metal is obtained. The silicon of the individual cars is determined meanwhile just the same, and should differences arise, the proper correction can be made for mixture calculation purposes, and attention of the furnace called to the discrepancy, so that subsequent shipments may be more correct.

As above stated, each brand should have its separate pile, but the silicons of each may be arranged as above outlined. This limits the piles. The care in marking avoids errors often made, especially as every pile should be designated by the letters of the alphabet and not by names or car numbers. Furthermore, a record of the amounts taken off can be kept in the office, showing at a glance what is left from each respective pile, and how deeply each silicon has been cut into. This for subsequent orders of pig iron.

Brands of Pig Iron in Stock.

It is always a good policy to have three or four brands in stock of the silicons required. Occasionally, however, special reasons preclude this, and one brand only is available. With the piling as above indicated, a heat does not get the iron from only one or two cars, but from 25 cars or even more, and this without a complication of records. The writer at one time had 5,000 tons of iron of one analysis thus piled up in a series of piles. One silicon, one letter of the alphabet designated all these piles, and in mixture making, together with other smaller piles of different silicon content, everything worked without a hitch.

In the system developed by the

writer in connection with the above method of piling, he had a report of every daily heat, the weighmaster being under the charge of the laboratory. The charges were delivered to the foundry foreman on the furnace platforms, he getting a copy of every mixture for his information. A record of every brand and silicon pile was kept in so many net tons as they came in. The daily melt was deducted day by day. At the end of every month an order was placed for iron for delivery during the next three months, and so specified for silicon that the relative proportion of the silicon piles was kept normal. Thus, suppose that at normal times the silicon should range as follows:

Per cent.	
0.75.....	5 per cent of the total iron
1.00.....	15 per cent of the total iron
1.25.....	50 per cent of the total iron
1.50.....	15 per cent of the total iron

If for any reason the high silicon pile were drawn upon heavier than the above ratio, at the end of the month this was corrected by the next iron order. It should be understood that the contracts were made in such a way that this specification for silicon could be given at any time without affecting the price. In case of a special bargain available, a very heavy tonnage was often taken as per the incident above given.

The above has been outlined for a special purpose. In these days of consolidations, and the desirability to be free from exhorbitant prices or imperfect deliveries, it is only a question of time when the very large interests in the foundry business will own their blast furnaces, or else control the entire output of at least one stack. With the method of piling given, it is possible to have only a single brand in the yard and get perfect satisfaction. This is from actual experience. The writer particularly commends this method of piling iron to the attention of malleable men in the interest of uniformity in excellence of product.

Coke Malleables.

The coke irons we purchase today are known as "Coke malleables," formerly they were called "Bessemer malleables," and found an outlet for those irons which would not pass as "Bessemer," on account of higher phosphorus content. The "off Bessemer" irons, which had high sulphur, being palmed off on malleable works also, soon created such trouble that coke iron came into disrepute, and a revival of charcoal metal came about, as explained in the early chapters. Now, however, there is a regular production of pig iron from ores higher in phosphorus than the Bessemer limit, which are incidentally smelted with plently of coke to make them honest, and these give first rate results.

Sprues, Gates and Wasters.

Discussing next the sprues, gates, wasters, scrap hard castings, or whatever they may be called, these are essentially the regular malleable iron in the hard of the daily heats, and should be taken care of as fast as made. As every well regulated malleable works should have the silicon of every heat before the castings go into the anneal, the average silicon from all the daily heats, for the sprues will be known at all times for mixture purposes. The calculation therefore becomes a fairly exact one, and changes in the mixture can be made from time to time, as the silicon of these sprues goes up or down, presuming that the pig iron supply remains constant.

The quantity of these sprues varies with every works. In the case of very light castings, the proportion of the sprues in the daily heats may go as high as 60 per cent, whereas for very heavy work it may not exceed 25 per cent. It is absolutely necessary to use up the material as fast as made, so as not to pile it up in the yard, or have it in the way in the foundry. Once thus stored, it becomes an unknown quantity and may work havoc in subsequent mixtures.

Cleaning Sprues.

A further consideration is the cleaning of the sprues. It is good practice to roll the sprues in a very large tumbling barrel somewhere outside of the foundry to remove the burnt sand adhering. This reduces the amount of slag made, but more important, thoroughly mixes the sprues from the various heats, they being brought to the sprue barrel from the different parts of the foundry floor in the nightly cleaning up. Rolling the sprues at night is advisable, on account of the dust made. The clean sprues are then weighed up and distributed for the various morning heats on the charging platforms. If a heat happens to be higher or lower in silicon than expected, the sprues resulting will be so distributed that no damage will result. The foreman in charge of the weighing, by keeping in touch with the person making the mixtures, can keep him posted as to the supply of sprues to be cared for. In fact the usual custom is to allow a trifle more sprues in the mixture than are actually made, and fill out the shortage with a low silicon pig iron. This keeps the floors clean.

Annealed Scrap.

The annealed scrap is a serious problem for the malleable shop. From the nature of the case, a piece of this material may remain apparently unmelted in a heat until the very last iron is being drawn off. The skin of a casting being almost as infusible as mild steel, the temperature of a bath of malleable is not high enough to melt it easily. The interior of the casting may be fluid, but the shell holds it intact. Hence the general practice of selling this annealed material as scrap, or making annealing pots of it.

The writer took advantage of this peculiarity of the annealed casting to have its interior melted at the ordinary temperatures of the bath, while the skin might be intact, in caring for some 30,000 tons of scrap couplers, which were becoming a financial white elephant to one concern. By crushing these couplers under the hydraulic press, at a cost of about 50 cents a ton, the interior of the castings was exposed sufficiently to allow of ready melting, and a regular progression of heats was made in which the malleable scrap was charged in increasing quantities until both actually contained 80 per cent malleable scrap couplers. The material had to be charged twice and melted down to get it all into the furnace on account of its bulk. The resulting castings did not have a nice appearance with these high percentages, but they were the strongest ever made.

Steel Scrap.

With the advent of steel scrap in the mixtures, the melting point of the bath has been raised, and at the present time it is quite possible to charge good clean annealing scrap in modest proportions and get results even without the crushing. Formerly a scrap coupler when charged would float about unmelted until the end of the heat, then burn off the skin, with the consequent damage to the iron for castings.

Malleable Scrap in a Heat.

The proportion of malleable scrap in a heat should not generally exceed 20 per cent, depending upon the proportion of sprues to be cared for. In the very large establishments it is customary to take back scrap malleable on account of new castings. Here the above method of caring for scrap couplers means dollars. In the case cited, the difference between pig

iron and the malleable scrap at that time, allowing for the cost of crushing was $10 a ton. Hence that pile of 30,000 tons, which was used up in two years, represented a handsome profit. More than this, the use of this material successfully enabled the concern to take any other scrap couplers in exchange for new ones at a high profit, and finally some four carloads a week of home and outside scrap were cared for in this plant.

An investigation of the behavior of annealed scrap in the furnace indicated a heavier loss of silicon than is the case in melting sprues, and hence the advisability of allowing a lower silicon content for this material in the calculations than there is actually present. Thus the annealed castings, being in all probability normal malleable, the silicon ought to be about 0.65 per cent, more or less, generally more. In the calculations this scrap should be held down to about 0.40 per cent, which figure will be found best for the purpose.

Very light malleable scrap is difficult to handle, as it is usually badly rusted, burns, and gives trouble generally. It should rather be used in the cupola for making annealing pots in connection with the proper pig iron for this purpose. A little incident of interest in this connection happened to the writer. One of the officers of a concern had purchased a train load of gray iron scrap under misapprehension as to its use. The price dropped and a big loss was ahead. Incidentally there was an enormous pile of very light malleable scrap in the yard taken in exchange for good castings. The writer added several charges of half gray iron scrap and half of this malleable scrap to the regular run of the cupola for pots, and cast a special pig out of this mixture. This special pig was later fed into the regular malleable heats some 500 pounds at a time. The cost was not heavy for this melting. It saved the loss on the gray iron scrap, used up the small malleable, and made a profit each way, as the castings went for full price and were all right. It also illustrates the fact that when things are running right in a malleable foundry, some liberties can be taken with the mixtures.

Use of Steel Scrap.

Steel scrap in the malleable foundry is now very important, as the total carbon is reduced in this way, and stronger results obtained. Moreover, this addition has cut away every excuse for refining a heat, and the ideal conditions of a quick, hot melt without any refining action other than the unavoidable burning out of the silicon and manganese, should be aimed at. The scrap should be fairly light but not too thin. It should not be charged with the sprues as is frequently done, as it is sure to burn before being covered by molten metal. Steel scrap should be thrown into the bath after this is melted, and gotten under the slag cover as quickly as possible. Steel should not be allowed to burn, otherwise the malleable made will be inferior. The proportion of steel in a mixture will depend upon the amount of malleable scrap used. In any case it should never exceed 10 per cent with no malleable scrap in the mixture.

Wrought Iron Scrap.

Wrought iron scrap seems to be very active when put into malleable heats, as when very much is added the cracking of castings is noticed at once. In general the efficiency of these scrap additions may be said to be as follows: 100 pounds of wrought iron scrap equals 500 pounds of steel scrap, equals 2,000 pounds of malleable scrap, so that substitutions in the mixture may be made accordingly, taking into account, however, the silicon content which is thus disturbed.

Borings, whether cast or steel, should, if used at all in a malleable heat, be charged under the slag when the bath is melted. It is better to get rid of the borings in the scale pile, for they are usually rusted and give little in the way of return in melting. Shot, however, from the slag barrel should go into the furnace, the finest preferably under the slag, the coarser with the sprues.

Finally we have the ferro-alloys and cast iron scrap. The latter can be used in small quantities provided no burnt grate bars are included. The small addition of phosphorus introduced into the heat amounts to little, and mention is only made here of the matter so that a concern may know that it is possible to take care of its gray scrap without loss. It practically amounts to just so much pig iron saved in the heat. The quantity used, however, should not exceed 5 per cent.

Ferro-Alloys.

Ferro-silicon is the only ferro-alloy which should be kept in stock at a malleable works for emergency use. Of ferro-titanium and ferro-vanadium, and also ferro-magnesium when this comes on the market, we can only say that their application is too new to give results at this time. The question may safely be left to the future, and when the cost gets to within commercial limits, more will be heard of the matter.

There are two ways of using ferro-silicon for malleable purposes. As a high silicon pig in the bath in case of this running "high," and in the ladle as 50 per cent or 75 per cent alloy, in case it is desired to make very small castings from a low silicon heat suitable for heavy work. In the first case it is well to have a car load of pig iron running from 14 to 20 per cent of silicon at hand. Some of this, broken up into small pieces, should be located where the weighmaster can bring it on demand from the foundry foreman or the melter. The amount used should be reported to the office or laboratory, and a record kept. There is a very great tendency to use this material in the heat just before tapping to save the iron, whereas the application of muscle in the first place on the part of the melter in rabbling well, will promote a quick heat and get good iron without the alloy. A long drawn-out heat is always a bad one, and hence the discouraging results when the tactics of the steel melter are introduced into the malleable foundry. The management, by keeping tab on the ferro-silicon pig thus used, will quickly know whether the melters are doing their full duty.

Where, through accident, a heat is lost by burning, the proper thing to do is to add sufficient silicon by means of this pig to get the heat up to the proper silicon content, and then pig the whole bath. This can then be fed gradually into subsequent heats without trouble.

Adding Ferro-Silicon in the Ladle.

Adding high grade ferro-silicon in the ladle is a comparatively new matter to which profitable attention might be given in works where the heavier class of castings is the rule. The discount being heavy for light work in these concerns, it will pay to catch the very last of a heat in a large ladle into which the ferro-silicon has been placed, or fed on the spout as it is let run out. Probably better still, to stop the heat at the right time, add the rich ferro-silicon in the bath, rabble well, and then pour all this iron into light work as usual.

The materials going into a heat having now been discussed, the next matter to be taken up is the calculation of the mixtures.

WESTINGHOUSE DOUBLE FLOW STEAM TURBINE

The accompanying illustrations show details of the Westinghouse double flow steam turbine. The illustrations are drawn from the installation at the Brunot Island station of the Pittsburg Railways Co. The double flow principle is embodied in these machines, one of which is of 3,000 kilowatts and three of which are of 5,000 kilowatts capacity. The smaller unit has been in successful operation about a year. The larger ones are in course of erection. Each turbine is connected by a short and direct exhaust duct to an Alberger condenser of the centrifugal jet type. The condensers and pumps operating them are located beneath the engine room floor between the turbine foundation. A steam-driven two-stage dry-air vacuum pump is also provided for each turbine.

The double flow turbine may be regarded as a result of a demand for turbine generating units of large capacities at high speeds. For large machines the advantages of the combined impulse and reaction principles of steam expansion, together with the double flow construction, are so important that the practical results as embodied in the machine under description is most fortunate. For machines above 5,000 kilowatts capacity, the double flow construction will be standard in all future Westinghouse work. For smaller capacity the single flow principle predominates, and in sizes below 3,000 kilowatts the familiar Westinghouse-Parsons construction remains standard.

Elementary Construction.

The advantages of the double-flow construction will probably be most clearly understood by first considering the low pressure double-flow turbine shown in Fig. 1. This turbine consists of two identical Parsons turbines placed end to end, taking steam at the center and exhausting at both ends. As the two elements are identical, and the steam flows through them in opposite directions, the axial thrust of the steam on the blades due to the difference of pressure between the inlet and outlet of each element, will be exactly the same in both sections. With the exception that the governor may often be omitted from the low pressure turbine, it is practically identical with the high-pressure double-flow turbine. The high pressure machine is directly evolved from the low pressure by the addition of a high pressure impulse wheel mounted at the center of the rotor. Fig. 2 represents the final step in the evolution of the present complete high-pressure machine. The feature of the double-flow turbine is its large reduction in bulk and in weight of individual parts to be handled in assembling on account of the reduced span between bearings; it is also due to the low pressure section being in two parts opposed in position and resulting in axial equilibrium, permitting the use of low pressure blading of moderate length; to the cylinder not being exposed to high pressure and high temperature steam the maximum pressure encountered being about 75 pounds; to the relatively large volume per pound of steam at admission to the first Parsons section avoiding the necessity of short blades otherwise necessary with large diameters; only one balance piston is required, of moderate diameter; the impulse element is well suited to high pressure and superheat; it works well into the dimension scheme, and reduces the shaft length nearly 50 per cent; the exhaust connections pass through bed plate largely reduced in size due to divided flow.

General Description.

Steam enters the turbine through a flanged opening in the lower half of the casing from which it is piped directly to the nozzle blocks. For convenience in illustrating the nozzle block, Fig. 2, is shown at the top, whereas, it may be located at any point in the periphery nearest the inlet. Expending in suitable nozzles, the steam impinges upon the impulse

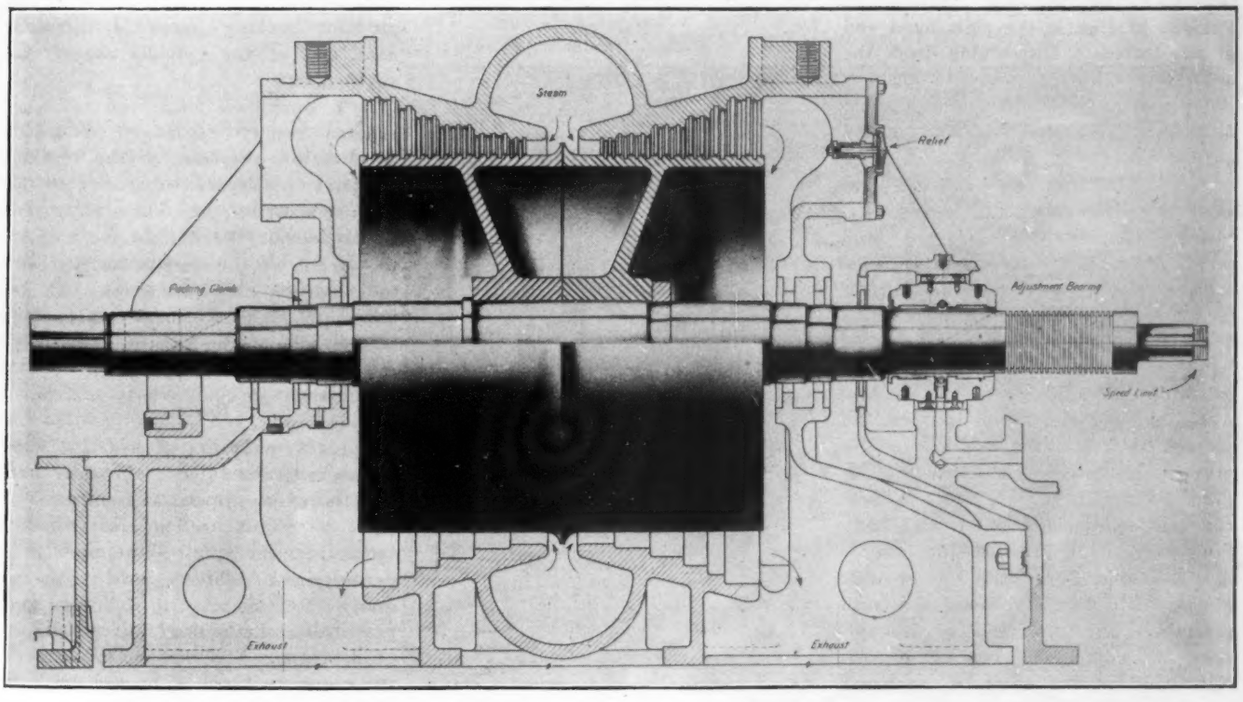


FIG. 1—SIMPLE DOUBLE FLOW TURBINE WITH PARSONS BLADING.

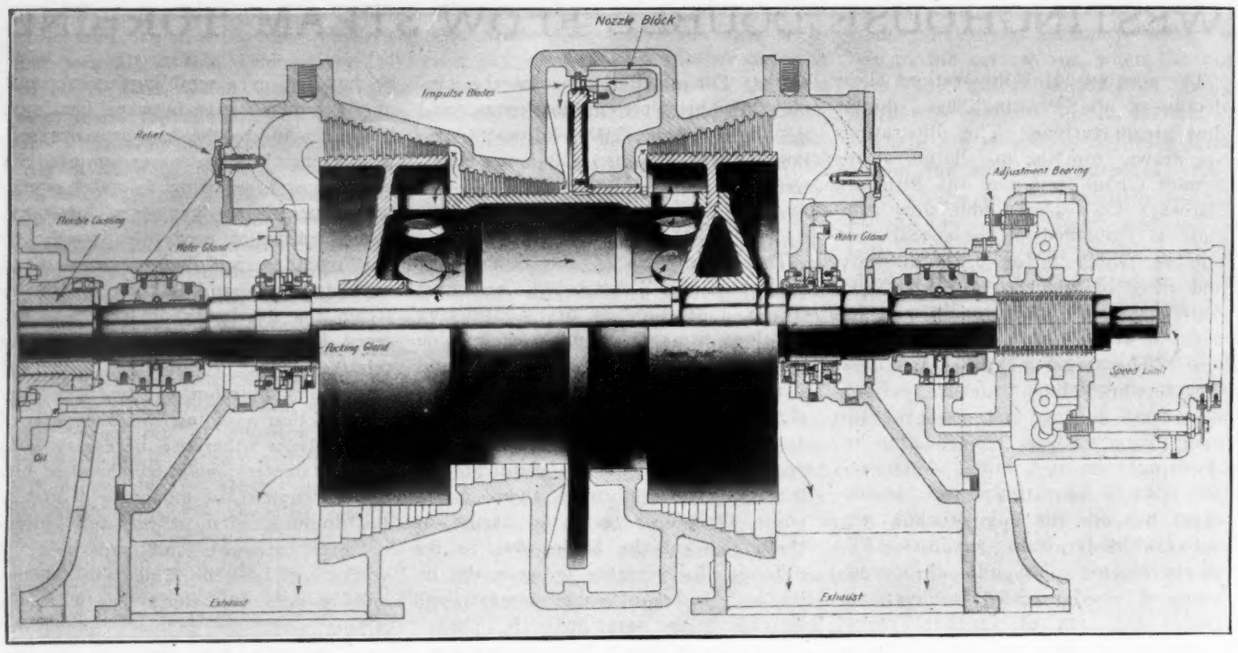


FIG. 2—CROSS SECTION OF MODERN DOUBLE FLOW TURBINE WITH IMPULSE WHEEL AND PARSONS BLADING.

blades, enters the impulse wheel chamber, and is distributed evenly around the casing so as to enter the intermediate Parsons section of the turbine, around the entire periphery of the rotor. As in the single-flow turbine, the steam then divides along two separate paths, one-half entering the left-hand section of low pressure Parsons blading, the other passing through the interior of the rotor shell which forms the connecting passage to the remaining low pressure section of Parsons blading at the right-hand end of the turbine. Discharging from the last rows of low pressure blading, the steam passes into the exhaust connections and to the condenser in the normal manner.

As the same pressure exists on both sides of the impulse wheel disc, this is not subjected to any end thrust and requires no balancing. The differences of pressure between the inlet and outlet of the Parsons intermediate section is accurately balanced by a dummy piston of moderate dimensions, located between the impulse wheel and the right-hand low-pressure section. As the thrusts in the low pressure sections are in opposite directions and balanced, the entire turbine runs in equilibrium under all conditions of vacuum, pressure and load. It is, of course, necessary to provide means for accurately fixing the axial position of the rotor, and for this purpose, an adjustment bearing on the right-hand of the shaft, is, as usual, fitted. This consists of a number of collars turned in the shaft, into which fit corresponding brass rings fixed in the adjustment blocks. The upper and lower halves of the adjustment bearing may be moved by means of micrometer screws, thus permitting the axial position of the rotor to be accurately known at all times.

Cylinder.

All double-flow cylinders are made in two parts, the upper and lower halves each being a one-piece casting. The design is symmetrical throughout, and there are no longitudinal flanges except those at the center required for bolting the two parts together. Manholes are provided at each end of the cylinder to permit access for interior examination, and relief valves are fitted in each of the manhole covers to prevent the pressure in the exhaust passages rising to a dangerous point in case of failure of the condensing apparatus and sticking of the atmospheric relief valve. A steam and air-tight packing gland is fitted at each end of the cylinder where the shaft enters.

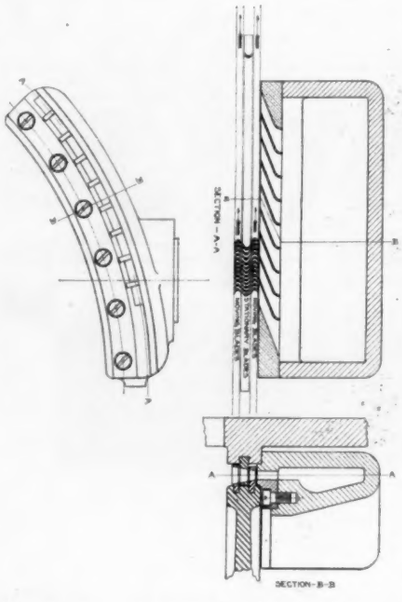


FIG. 3—ARRANGEMENT OF NOZZLE BLOCK.

A Y connection fitted with two corrugated copper expansion joints located below the base of the turbine, connects the separate exhausts to the main exhaust nozzle. These expansion joints provide the desired freedom of movement of the turbine casing, due to expansion and contraction. An atmospheric exhaust nozzle opens out of the side of the exhaust Y to permit non-condensing operation.

Rotor.

The rotor consists of five cast steel members pressed on a through shaft and locked to prevent movement. The shaft carries its load at one-third distance from the points of support, thus permitting a lighter shaft than required for distributed loading and practically eliminating the possibility of deflecting. To the opposite end of the rotor is fitted a bronze bushing

surrounding the shaft, permitting it to move axially without appreciable resistance under any differential expansion of shaft and rotor body.

The impulse element consists of a flanged cast steel disc forced on to the rotor body with a pressed fit and securely keyed. The flange at the base is grooved and forms the dummy or balance piston for the intermediate Parsons section. A typical arrangement of blading and nozzles is shown in detail, Fig. 3. The nozzle block is an independent casting, separate from the turbine cylinder. Receiving steam from the governor valve, this restricts high pressure and high temperature to a comparatively small casting which is free to expand and contract with changes of temperature.

As the steam is not expanded in the impulse element to less than about half of the initial pressure, divergent nozzles are unnecessary and simple straight-sided nozzles are used. The entire nozzle block may be removed in one piece, and the construction is such that the nozzle walls may be readily renewed if necessary. As practically no difference of pressure exists on the two sides of the element, the area through the bucket increases to provide for the decreasing steam velocity in each rotating wheel. As in all high-pressure impulse turbines, the nozzle blocks cover but a small portion of the periphery of the impulse wheel, so that ample space is left around the remaining portion of the wheel to permit the free circulation of steam in all parts of the impulse wheel chamber before entering the Parsons element.

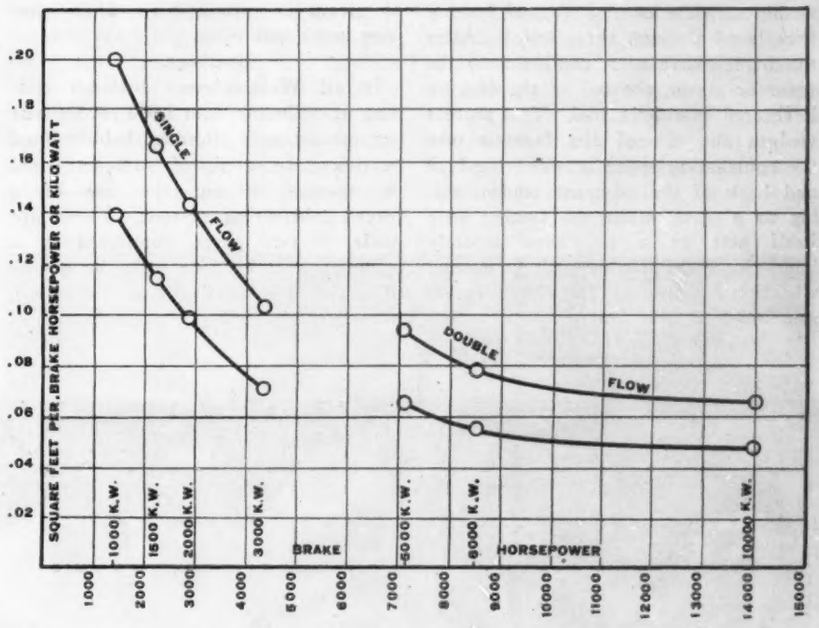


FIG. 4—SQUARE FEET OF FLOOR SPACE PER BRAKE-HORSEPOWER OR PER KILOWATT OF WESTINGHOUSE SINGLE FLOW AND DOUBLE FLOW TURBINES.

Parsons Element.

Except for the division of the low pressure Parsons section, this part of the turbine is identical with the single-flow construction, consisting of a series of rows of moving and stationary blades, increasing in height to allow for the increased volume of the steam. In the Parsons section, the velocities from stage to stage remain practically constant. The blades are inserted in grooves cut in the spindle and cylinder body, and are securely held in place by caulking the soft spacers, or distance pieces inserted in the grooves between the blades. The diameters of the low pressure section are chosen so as to permit the same size blades being used in both intermediate and low pressure sections, thus simplifying the blading considerably.

Blading.

A special compound metal has been developed for the blading in Westinghouse turbines. This material, known as "Monnot," consists of a steel core covered with a thin copper sheathing chemically welded to the steel in such perfect manner that the blades may be drawn cold from the original ingot into the required finished section without in any way affecting the bond between the copper and steel. The copper offers the maximum resistance to chemical corrosion resulting from bad feed water carried over in the steam during priming, and at the same time the integrity and great strength of the steel core is maintained.

Blade Lashing.

The method of reinforcing long blades has been greatly improved. Comma shaped holes are punched in the blades at any desired point of reinforcement. The blades are then

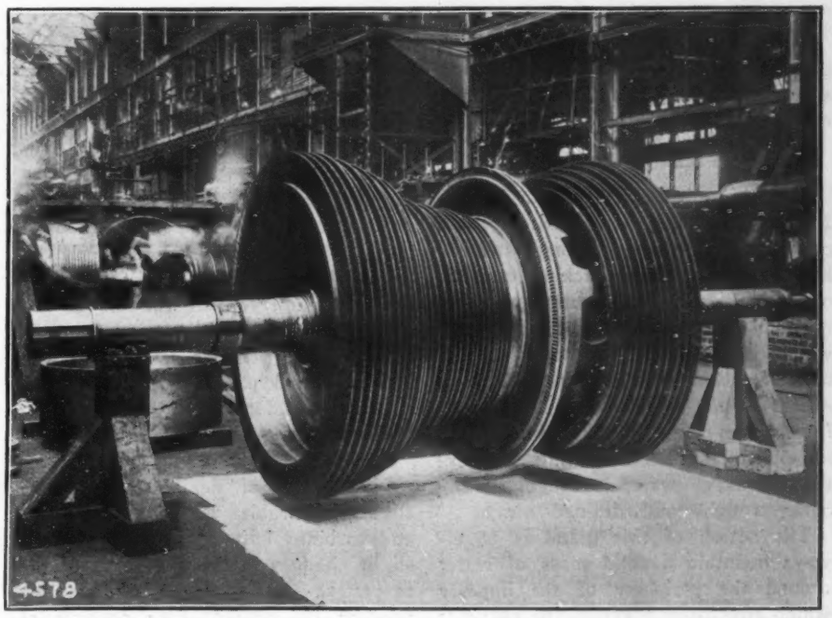


FIG. 5—ROTOR.

strung on to a comma shaped lashing wire laced through these holes. After the blades have been caulked into the rotor or stator, the tail of the lashing is sheared over by a tool. This process wedges the tail of the lashing into the contracting space between the face and back of the adjacent blades, acting as a strut, while the lashing wire itself acts as a tie, thus securely interlocking the blades and preventing vibration. Moreover, the short section remaining in the blade after being sheared off, acts as a key to prevent a broken blade from injuring adjacent rows.

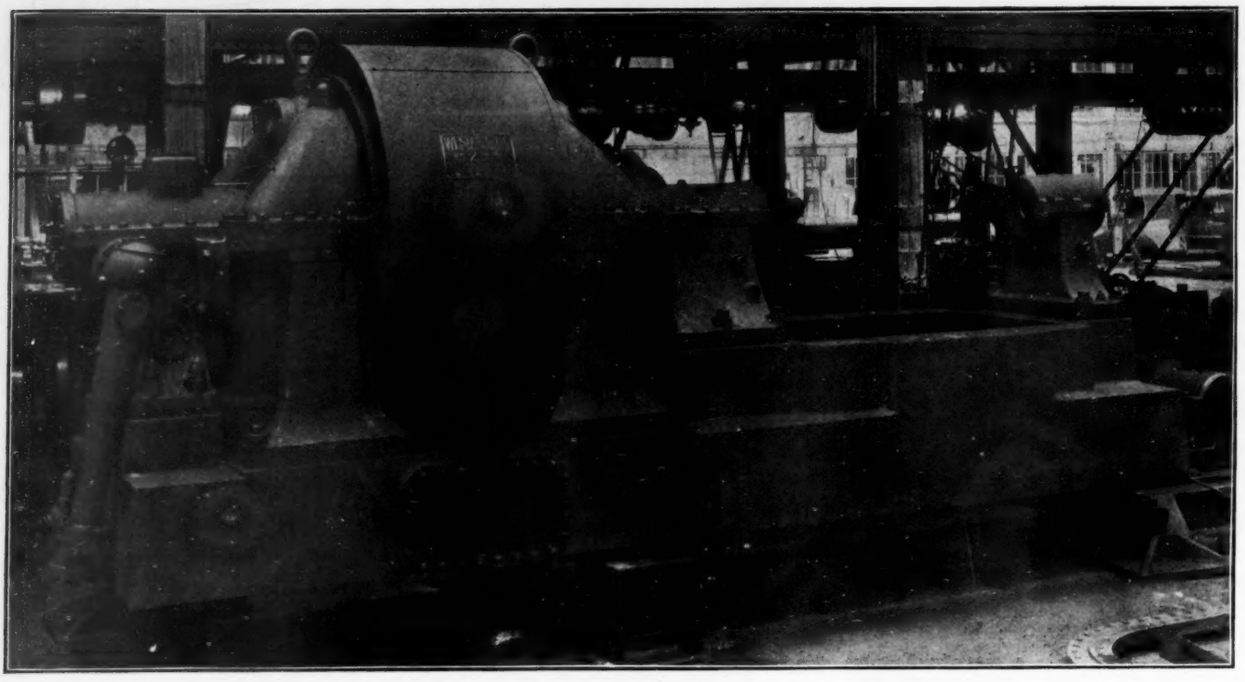


FIG. 6—DOUBLE FLOW TURBINE MOUNTED ON SUB BASE.

Packing Glands.

A water-sealed gland, shown in Fig. 2, is fitted on each end of the turbine shaft where it passes through the exhaust casings. This packing consists of a small centrifugal pump propeller running in an enclosed chamber to which water is supplied under a head of about 10 feet, which is slightly in excess of the head due to the centrifugal force acting on the water in the impeller blades. At starting, any external leakage water is caught in circular troughs and drained away.

The action of this gland is to always maintain a solid mass of water around the periphery of the impeller which effectually prevents the entrance of air to the condenser or the escape of steam to atmosphere when running non-condensing.

Bearings.

In all Westinghouse turbines running at or below than 1,800 revolutions per minute, self aligning, babbitt-lined bearings are used, of sufficient area to operate without the use of a forced lubricating system. These are made in two parts, supported in a spherical seat by four pads, by means of which the bearing and rotor can be accurately centered to preserve uniform clearances. The oil supply to the bearings is delivered at the top of the journal at the point of minimum pressure, which assures an even distribution of oil. All the bearings are supplied with oil from a central reservoir, under a static head of about 5 feet. A small rotary oil pump driven from the turbine shaft by worm and bevel gearing, returns the oil to the various bearings, from which it is drained to a strainer to remove any impurities and passed through a tubular cooler before again returning to the bearings.

Coupling.

Some form of flexible coupling is always desirable between generator and turbine shaft to provide for any slight changes in the alignment of the respective bearings. The coupling used in the present case consists of two sleeves, one of which is permanently keyed to the generator shaft and the other to the turbine shaft. These sleeves have a number of projecting teeth which engage with the projections on a surrounding collar. The latter is made in two parts to permit removing either the turbine or generator shaft without disturbing the other. With liberal end clearance, and all surfaces under pressure practically radial, the coupling allows considerable variations in the shaft alignment and permits the generator shaft to float in its bearings, limited only by a retaining ring at each end.

Speed Limit.

In case of over-speeding, the main throttle valve is automatically closed. This device consists of a spring balanced plunger located at the end of the main shaft. Normally, the pressure of the spring is so adjusted that the plunger is held to its seat. Should the turbine for any reason exceed a predetermined speed, the end of the plunger emerges, trips a relay valve and operates a quick-closing throttle. It should be noted that this throttle valve is closed by releasing the pressure beneath its piston, and any accident to the pipe connections of the speed-limit would instantly shut down the turbine.

Governing.

The system of governing used is the "puff" or "gust" system compris-

ing a constant number of admissions per minute with a variable duration of admission according to the load. This refinement of the purely throttling method, is distinctly different from the principle of governing by adding nozzle after nozzle, all at maximum pressure, as the load increases. Both the "puff" method and that of individual nozzle control, may properly be regarded as purely mechanical methods of securing a constant-speed prime mover—neither possessing any important thermo-dynamic significance. In any multi-stage turbine, governed by individual nozzle control, it is difficult, if not impossible, to maintain an equal distribution of work between the several stages without a means of governing the nozzles in each individual stage at the same time as the high-pressure stage. On the other hand, theory indicates and experiment proves that with the throttling method of governing, stage pressure control in the multi-stage turbine is entirely unnecessary and that where the expansion in each stage is but a small part of the total expansion range, the initial and terminal pressures of each stage rise and fall together, resulting in a fairly constant pressure ratio at each successive expansion; in other words, for small ranges and with throttle governing, the nozzle and blade areas are reasonably correct through a wide range of load and pressure distribution. For this reason, the impulse section of the Westinghouse turbine expanding, say only one-fifth of the total range, is properly proportioned for a wide range in load and may be governed without resorting to intermediate nozzle control, and without any sacrifice of economy at fractional loads. The type of governor controlling the double-flow turbine, is of the sensitive fly-ball type, differing only in minor details from the standard governor for single-flow machines. Its most important feature is that all parts are kept constantly in motion so as to avoid "friction of rest" and prevent sluggish action which would otherwise ensue after running a considerable period at constant load. A small relay steam piston does the actual work of moving the turbine valves, thus relieving the governor of practically all work except moving a small pilot valve. For convenience, in synchronizing and distribution of alternating current load, the governor is fitted with a small motor and weight by which the governor spring tension may be controlled from a distance—usually from the switchboard.

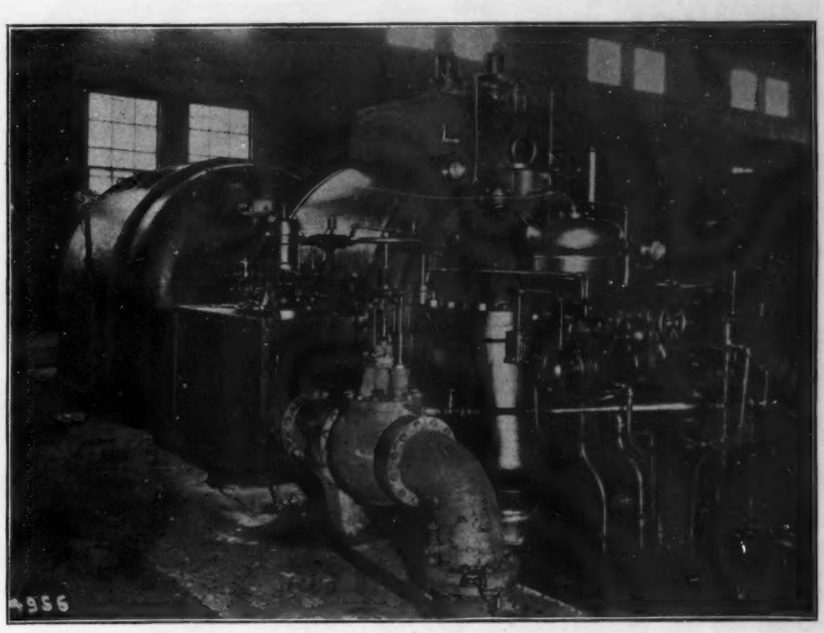


FIG. 7—GOVERNING MECHANISM.

NEW BLOOMING MILL TABLES AND MANIPULATOR FOR THE TENNESSEE COAL, IRON & RAILROAD CO.

Among other improvements which the Tennessee Coal, Iron & Railroad Co. has recently installed at its Ensley plant, a portion of which was described in THE IRON TRADE REVIEW, is a set of tables and manipulator for the 44-inch blooming mill to replace those which, though light, had given good service. The problem given the builder, the Wheeling Mold & Foundry Co., Wheeling, W. Va., was to design a new table up to the latest standard of heavy construction to fit on the foundations of the old one, as it was desired to make the change from old to new tables with as little loss of time as possible. It had, furthermore, been decided to retain the old hydraulic ingot tumbler, which fact, together with the impracticability of changing foundation bolts, fixed the spacing of the rollers.

The new specifications called for a line shaft 7 inches diameter and a face of roller gears which necessitated the use of bevel gears with an increasing gear ratio instead of customary miter gears. Without this feature of construction it would not have been possible to provide a line shaft bearing of suitable proportions.

The girders of the original table were of box section, but in the new table the I-section type of cast iron was adopted and the sections over the manipulator pits increased in depth from 26 inches to 33 inches, and the weight increased from 775 pounds to 1,150 pounds per running foot of girder. This great increase of girder weight and the use of solid forged steel rollers affords a very solid platform for the manipulation of the ingot. All of the table rollers are of solid forged steel 14½ inches diameter with bodies 94 inches long and journals 7¼ inches by 15 inches. Each roller complete with its gear weighs 5,500 pounds. The bevel gears are 19¼ inches by 26¼ inches diameter, 5½-inch face, and 2¾-inch circular pitch.

The smaller of the two gears is keyed to the roller. On each side of the mill there are two rollers in addition to the

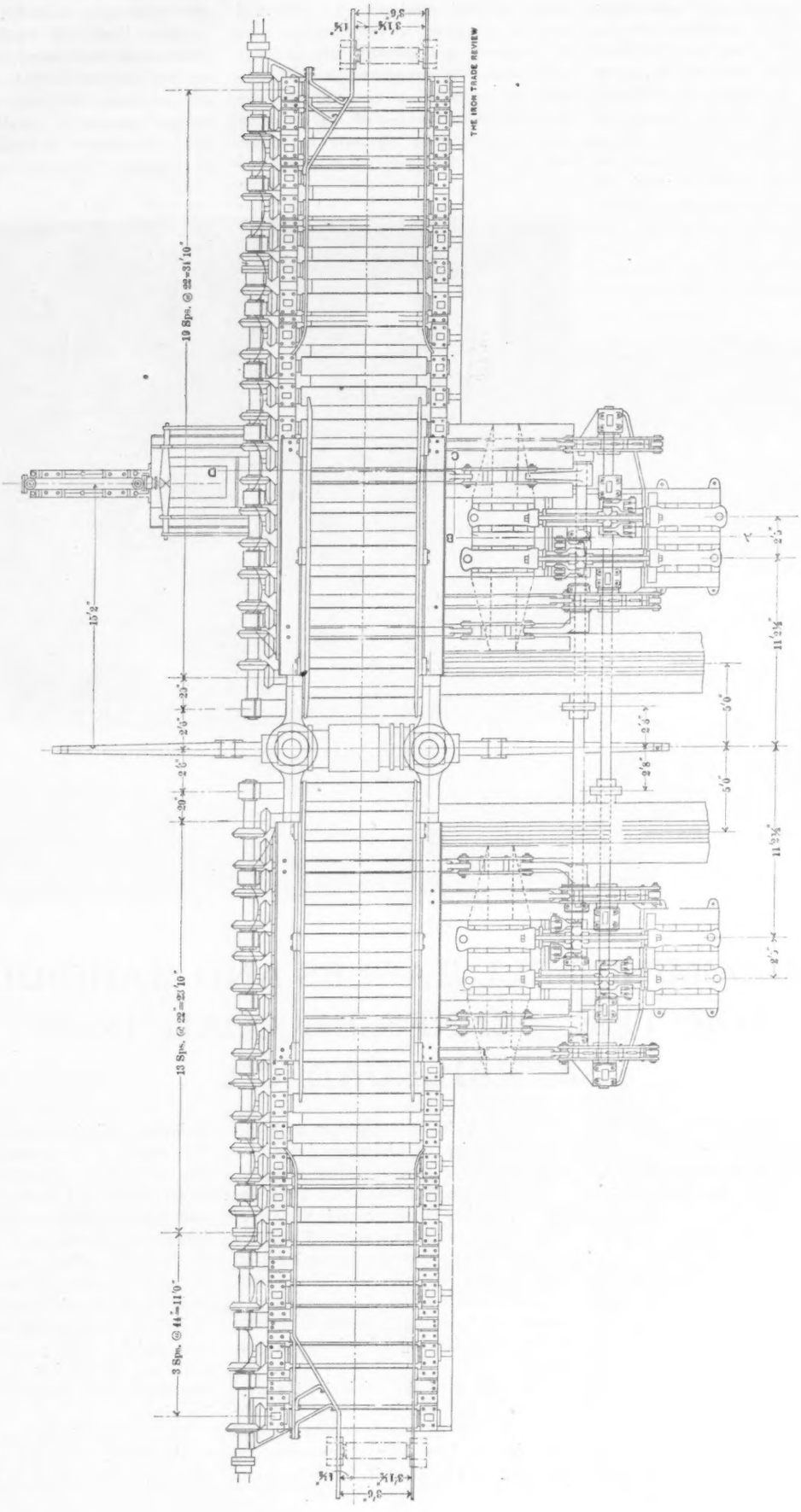


FIG. 1—PLAN OF MANIPULATOR AND TABLE FOR TENNESSEE COAL, IRON & RAILROAD CO.

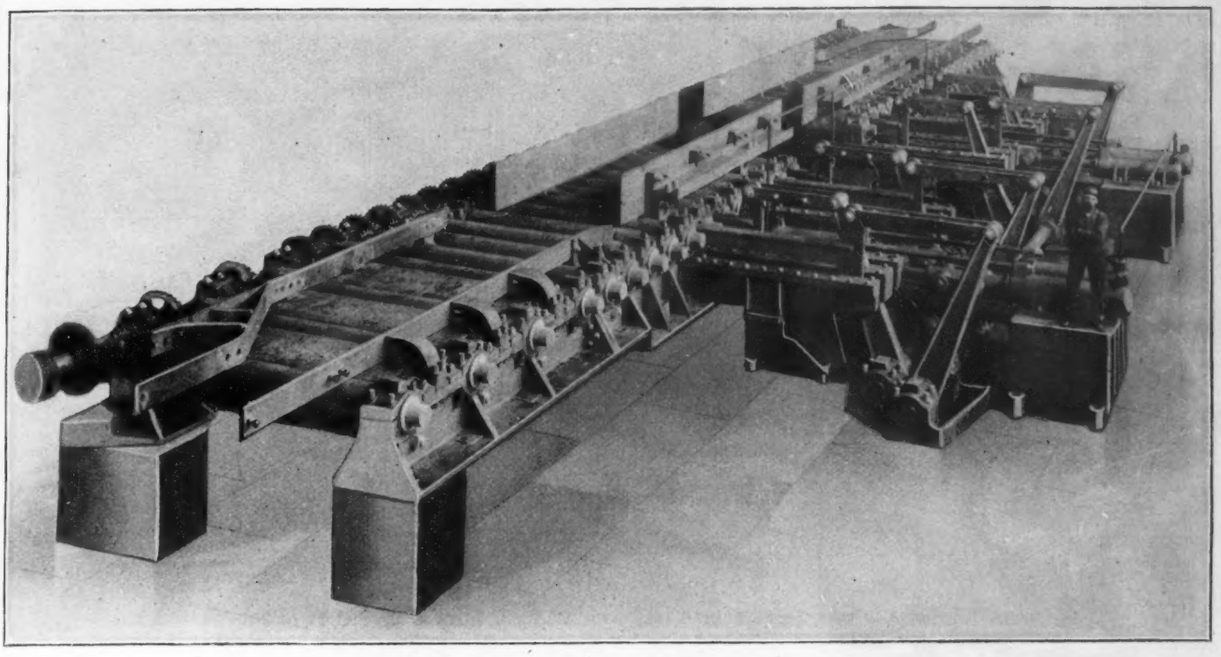


FIG. 2—TABLE AND MANIPULATOR.

table rollers—the one next to the table being driven and carried by brass bushings in holes bored out of the mill housings. This roller is of cast steel and is fitted on a 5½-inch shaft and driven by the table line shaft. The roller next to the mill is also of cast steel, brass bushed for 14 inches at each end, and running on a 7-inch shaft held in the mill housings. This construction was used in order to avoid boring out a larger hole than already existed in the housing, and also to permit of taking out the rollers in case of breakage without spreading the housings. The tables are each 33 feet long from center to center of end rollers. The receiving table contains 19 rollers and the delivery table 16 rollers—the last four rollers on this table being spaced 44 inches center to center, and the spaces between filled with apron plates. The roller bearings are made of lumen metal by the Lumen Bearing Co., of Buffalo.

The hydraulic manipulator used is of the Wellman-Kennedy type like the one on the original table, but of different detail. Instead of the rack and pinion arrangement for operating the slab sides of the manipulator levers and connecting shafts of heavy construction are em-

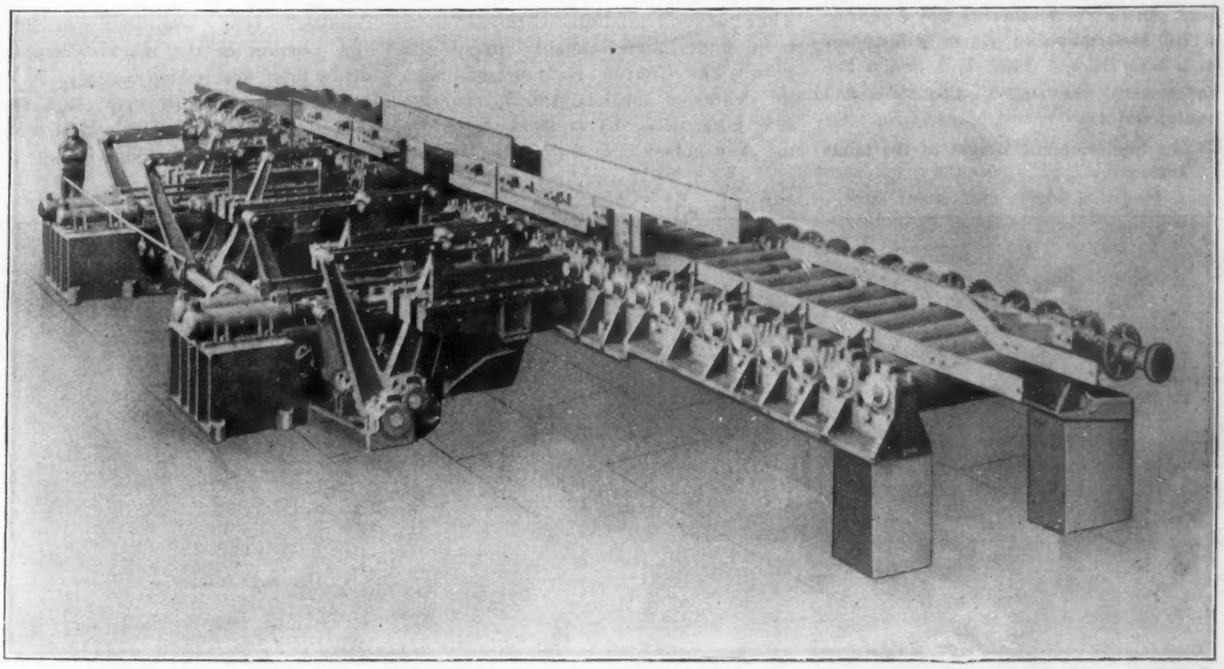


FIG. 3—TABLE AND MANIPULATOR FROM OPPOSITE END THAN THAT SHOWN IN FIG. 2.

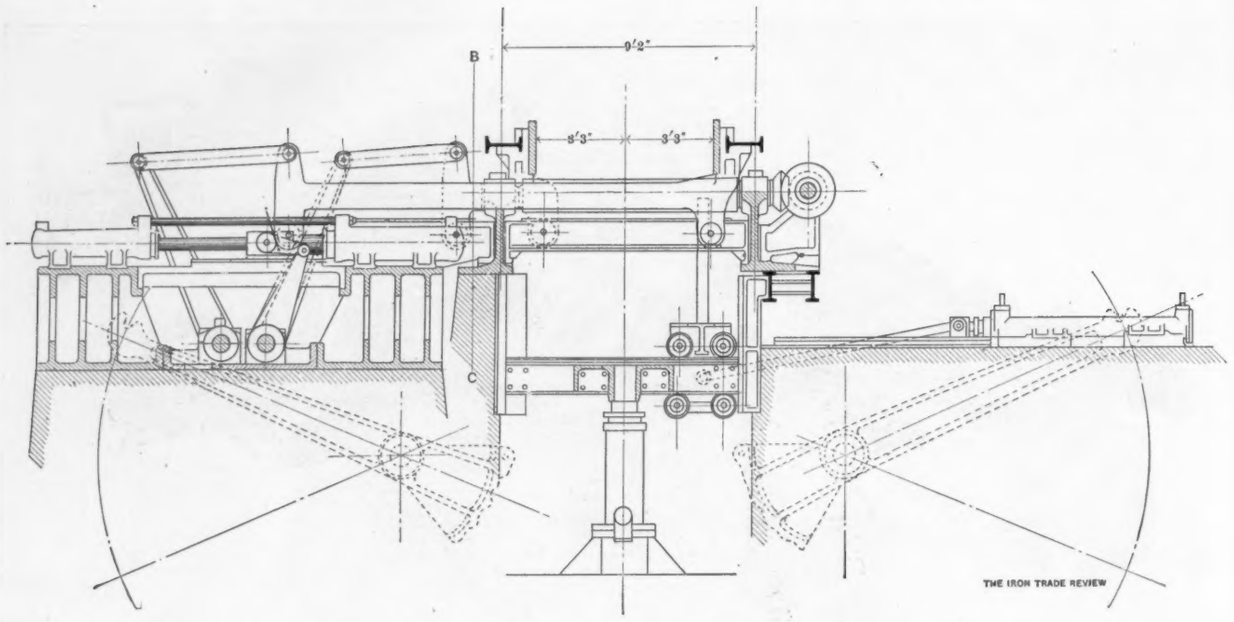


FIG. 4—CROSS SECTION OF TABLE AND MANIPULATOR ON LINE C D IN FIG. 1.

ployed. The manipulator cylinders, stands and bed plates are all rigidly bolted to the table girders, and the slab carriage trucks act as separators between the table girders. The tables are steam engine driven, the engine being bolted to a sub-base, which is also secured to the table girder.

Figs. 2 and 3 show the table as it was erected in the shop of the Wheeling Mold & Foundry Co. at Wheeling, W. Va. Fig. 5 shows the delivery table erected in the shop and driven with the new induction drive which has recently been put on the market by this company, a full description of which will appear in a later issue. Figs. 1, 5 and 6 are the general drawings of this table and manipulator.

The total shipping weight of the tables was 475,000 pounds, and of the manipulator 300,000 pounds.

New York's Minerals.—The mineral production of New York last year was the largest on record, according to a report by the State Museum, of which John M. Clarke is director. This report gives a total for the mine and quarry output of 1907 of 37,427,407 tons. The iron ore output was 1,018,013 long tons, valued at $3,750,493, it being the most important on the list. The ore mines at work number 13, while several additional mines have been under development during the year. The Clinton ore belt has been the center of special interest, although new enterprises have been started in the Adirondack region.

A COMBINATION DRILL CUTTER AND REAMER GRINDER.

The Wilmarth & Morman Co., Grand Rapids, Mich., has developed a combination drill cutter and reamer grinder, which is shown, together with some of its applications, in the accompanying illustrations. Fig. 1 is a photograph of the complete machine with the reamer grinding attachment in place. It will be noted that the drill grinder is of the well-known "Yankee" type somewhat modified. This portion of the machine requires no further description except to say that it is possible to adapt the range of drill grinding capacity to the range of drills in use in various shops. The

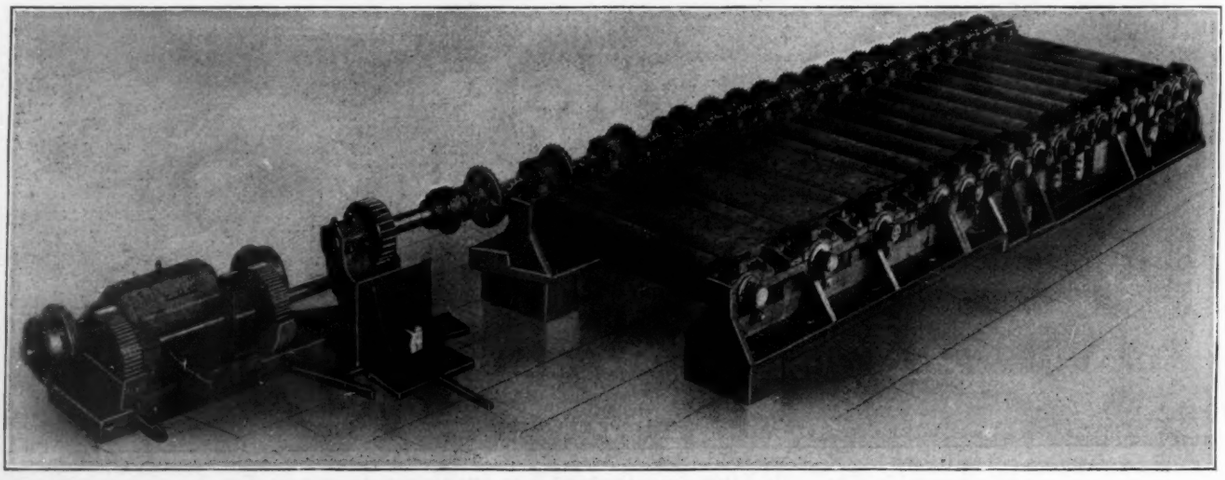


FIG. 5—TABLE WITH INDUCTION DRIVE ATTACHED.

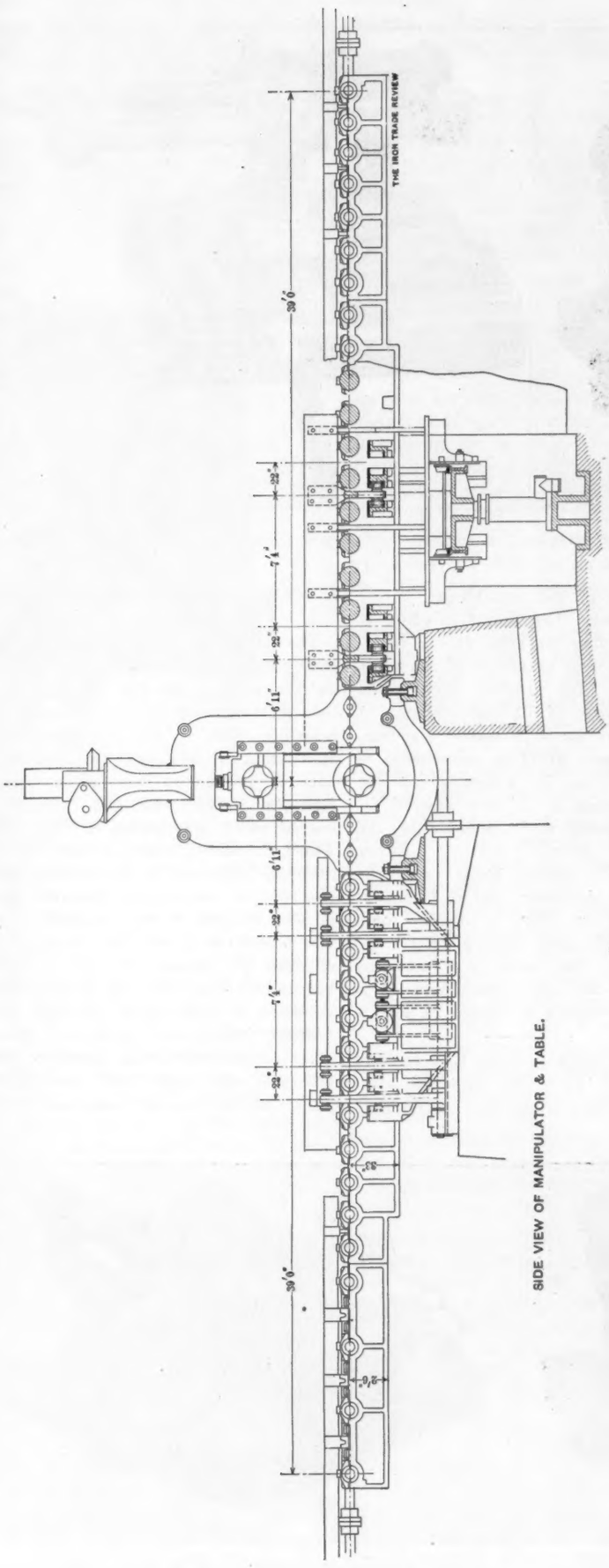


FIG. 6—SIDE VIEW AND SECTIONAL ELEVATION OF TABLE.

cutter grinder attachment comprises a table firmly bolted to the column of the machine and made of substantial weight. The type of drive is well shown in Fig. 1. It consists of a tail pulley on the main spindle of the machine driving by means of a belt running over an idler, the cutter grinder wheel. The bearings, ways and all features are liberally proportioned so that the machine will have long life and give satisfactory service.

Fig. 2 illustrates the method of grinding face and side mills. The actual grinding operation is performed by sliding the cutter past the face of the grinding wheel by means

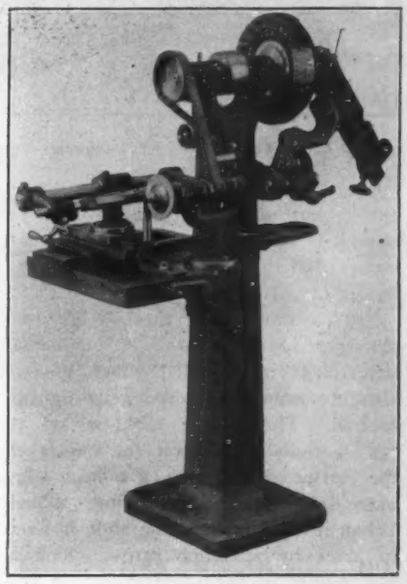


FIG. 1—WILMARTH AND MORMAN COMBINATION DRILL AND CUTTER GRINDER.

of a convenient lever, which may be seen projecting from the front of the table immediately below the cross feed handle. The adjustments to and from the grinding wheel are made by means of a cross feed screw and the clearance can readily be regulated as desired. The cutter to be ground is mounted on a spindle carried in a vertical standard on the carriage of the machine. The capacity for cutter grinding admits of face and side mills up to 12 inches diameter.

Fig. 4 illustrates the method of grinding angle cutters. The actual operation of grinding is the same as for grinding face and side mills as discussed in the preceding paragraph. The standard which carries the cutter however, is swiveled to the desired angle by means of the graduated circular base. The cutter illustrated is a 45-degree double angle

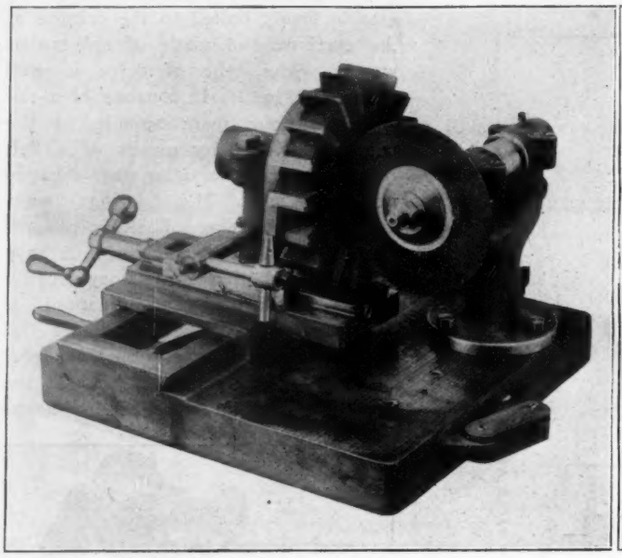


FIG. 2—GRINDING SIDE OF INSERTED TOOTH MILLING CUTTER.

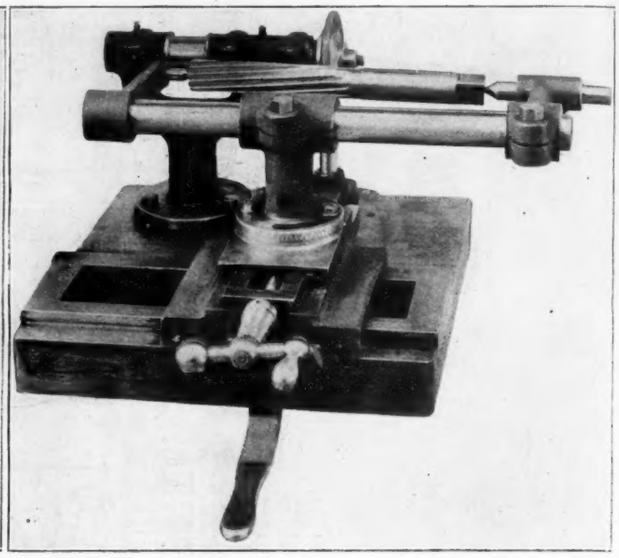


FIG. 3—GRINDING SPIRAL FLUTED REAMER.

cutter, but any desired angle can be obtained and angle cutters up to 8 inches diameter are within the capacity of the machine.

Fig. 5 illustrates the method of grinding gear cutters. A universal adjustment is provided which insures absolute accuracy in the grinding operation. The sliding table is set so that a radial line from the center of the cutter strikes the grinding edge of a saucer-shaped grinding wheel. When in this position the slide is fixed in place by a thumb screw which is not visible in the illustration. A micrometer adjustment is used for setting the cutter to the proper height to be exactly central with the wheel, and the gage is set in a position which corresponds with the grinding edge of the wheel. This holds the face of the tooth in position while the spring index dog shown on the forward edge of the attachment, is set and clamped. The actual grinding is done by giving the cross feed a reciprocating motion by means of the cross feed handle, for grinding each tooth. The capacity of the attachment is gear cutters up to 6 inches diameter.

The reamer grinding attachment is shown in Fig. 3. Reamers may be ground square or of any desired taper, this being made possible by the graduated swivel device. Either straight or spiral flutes may be ground, in diameter up to 8 inches and with a flute 8 inches long. Straight and spiral milling cutters are ground in the same way and by means of the same attachment as is used for reamers as shown in Fig. 3.

The Pittsburg & Lake Erie railroad has placed with the Standard Steel Car Co. an order for 2,000 cars.

A NEW OIL TEMPERING FURNACE.

The accompanying illustration shows an oil tempering furnace placed on the market by the Strong, Carlisle & Hammond Co., Cleveland. The principle used in the operation and application of the heat in this furnace is similar to that in the oven furnaces handled by this company, one of which was shown in THE IRON TRADE REVIEW of April 2, 1908. The principal difference is the position and size of the combustion chamber and in the venting of the surplus heat. The inner wall of the combustion chamber is formed by an oil tank suspended from the top plate. This rests on a baffle wall built into the bottom, front and back fire brick walls of the combustion chamber. The oil tank and baffle divide the chamber into two separate heating cham-

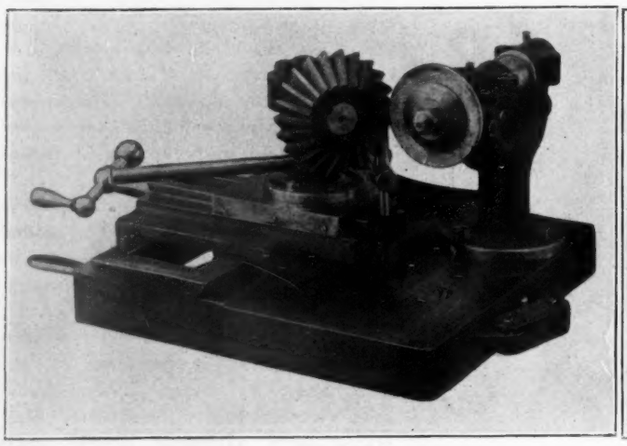


FIG. 4—GRINDING AN ANGLE CUTTER.

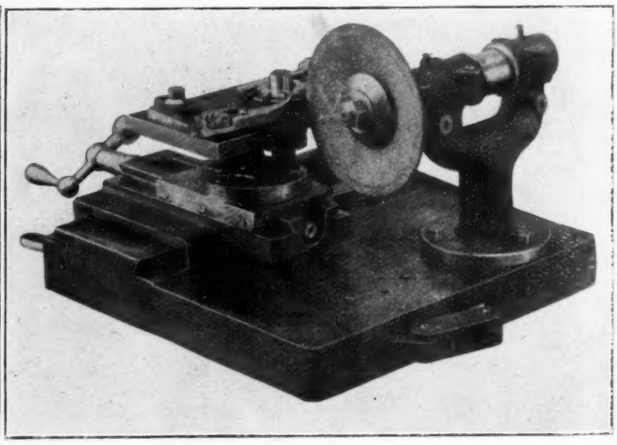
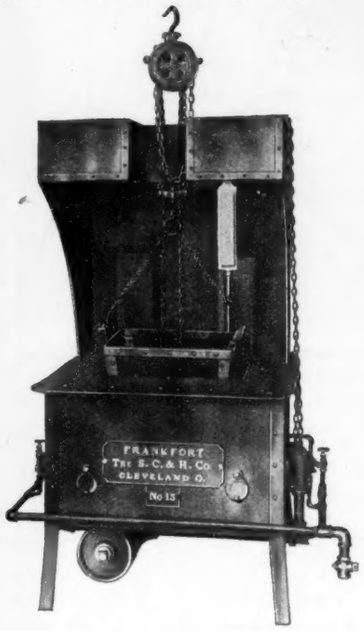


FIG. 5—GRINDING TOOTH FACE ON GEAR CUTTER.

bers, the largest dimensions of which are at the ends.

The path of the flames is such that they strike the baffle wall under the oil tank, are deflected to the outer walls of the combustion chamber and to the sides of the oil tank. The heat is forced into openings at the



OIL TEMPERING FURNACE.

front near the top and carried by flues built into the outer walls around the furnace to vent pipes at the back. The surplus of dead heat exhausts into the hood.

The outer casing of the furnace is made of heavy sheets of tank steel. The oil tank is of cast iron and is bolted to the top plate. Its construction is such that the contents cannot be spilled or overflow in the combustion chamber. The burners enter the combustion chamber from opposite sides and are fitted with pilot lights for igniting the gas in the chamber, enabling the operator to start the furnace without danger of explosion or back fire. A hood is provided to collect fumes from the oil or metal, these being carried to the chimney or open air by a sheet metal pipe. The furnace is equipped with a heavy iron basket to hold material, together with a thermometer registering up to 760 degrees Fahr., and a chain hoist for raising and lowering the basket. The principal dimensions of the furnace are as follows: Pot dimensions, 18 x 24 inches; pot depth, 12 inches; pot capacity, 10 gallons; basket, dimensions, 14 x 18 inches; basket depth, 10 inches; basket capacity, 200 pounds; height to top of pot, 24 inches; floor space, 36 x 37 inches; gas consumption per hour, 70 cubic feet.

BLISS PRESS FITTED WITH PATENTED STAGGER FEED.

In the accompanying illustration is shown a Bliss press fitted with a patented stagger feed device recently designed and built by the E. W. Bliss Co., No. 8 Adams street, Brooklyn, N. Y. The attachment can be made adjustable for different sizes of blanks, and while especially adapted for round work, can be used to a decided advantage on irregular shapes.

The simplicity of this attachment is one of its points of merit, overcoming the objections which are sometimes brought forward against automatic stagger feed gang presses. With the attachment, no preparatory slitting of sheets is necessary.

The sheet from which the blanks are to be cut and formed is placed on the table and fed against the first finger which together with the back gage on the table, registers the sheet for the first cut, after which the press is run continuously, tension being kept on the sheet to bring it against the first finger which acts in a manner similar to the regular automatic finger gage. As the sheet progresses, the scrap is sheared from the back by means of knives which cut a true and straight edge for gaging the back of the sheet on the second run, for the starting of which run, the stagger finger is brought into play by depressing a lever underneath the table. The sheet is again placed against the back gage and brought up to the stagger finger mentioned. After the first cut the stagger finger is automatically disengaged and the first finger again comes into play. The sheet is run through until entirely cut up in the manner described, the stagger finger being used alternately to start every other row of blanks. By using this stagger method of cutting, a saving of 6 to 15 per cent in the amount of stock is effected, this varying according to the size of the blank.

The several examples which follow will show the saving effected: Take a sheet of tin 20 x 28 inches, from which it is desired to cut blanks requiring a 2¾-inch diameter cut edge. By the old method of slitting the tin into strips and then running through the press, 70 blanks would be obtained from the sheet. By the stagger method used in the press shown, 76 blanks are obtained from the same sheet. Another example is the manufacture of bottle caps for which a 1½-inch cut edge is necessary. By the old method, from a sheet 20 x 28 inches, 234 blanks are produced; by the method used in the press shown, 270 blanks are obtained from the same size sheet.

The gages are made for continuous and rapid operation, materially increasing the output and are accurate, successfully handling decorated stock. In large factories, where any article

BLISS STAGGER FEED PRESS.

of sheet steel, brass, tin or copper is made in quantities, the saving which is effected is an important feature.

HEAVY WORK IN THE MILLING MACHINE.

The economies which can be effected by the use of milling machines for machining many classes of work that were formerly turned out on planers are constantly commanding increased attention. The tendency in the direction of more extended use of milling machines both in the matter of greater variety and great size of work represents a step forward in the specialization of machinery and not essentially a substitution of the milling machine for the planer. This latter tool considering its relatively cheaper first cost and its special fitness for machining plain work has its own peculiar place. The accompanying illustrations, however, taken in the shops of the Ingersoll Milling Machine Co., Rockford, Ill., are interesting and striking examples of results being accomplished by this company with the tools it builds.

In Fig. 1 is shown one of the larger milling machines whose general design, as is clearly indicated, embraces a combination of the movements and facilities of both planer

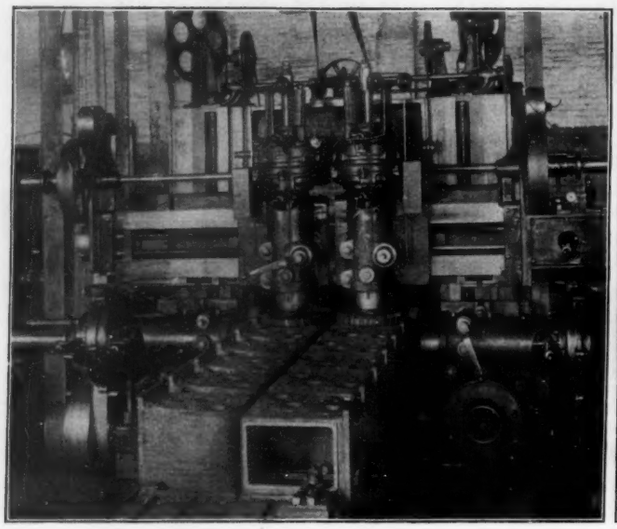


FIG. 1—MILLING FOUR SURFACES SIMULTANEOUSLY ON A QUANTITY OF GEAR BOXES FOR INGERSOLL MILLING MACHINE.

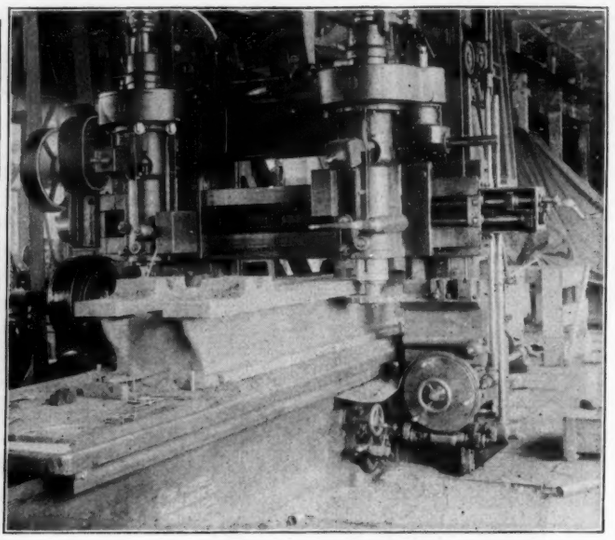


FIG. 2—ONE OF THE FINISHING OPERATIONS ON A BULLDOZER BED.

and milling machine. The work illustrated represents a job of machining a number of surfaces on a number of duplicate pieces. For this class of work the tool has marked advantages. The castings are gear boxes for the Ingersoll milling machine and they call for machining on four sides with the requirement that the faced surfaces be very straight and true. One setting up is all that is required and but two cuts are necessary. Following the roughing cut, a light finishing cut is taken without changing the cutters. The view of the tool shows the two vertical and two horizontal heads and the arrangement of gearing for driving the spindles. The vertical heads have a cross feed and the horizontal heads a vertical and the platen is provided with regulation for ample range of speeds. For this job the milling cost is especially favorable as compared with planer work. The time on these pieces including setting up the work and adjusting the tool, is one hour for each piece completely machined, probably less than half the time required for the same work on a planer.

In Figs. 2, 3 and 4 the several operations in the machining of a large bulldozer bed are shown which also represents work of a character to which these milling machines are well adapted. This tool is of slightly different model from that shown in Fig. 1, having only the two vertical heads. This also is one of the standard machines built by this company and the size of the piece set up and of the tool may be gained by a comparison with the table of the machine, which is 48 inches wide and 16 feet long. The operations shown are finishing cuts only, the roughing cuts being similar except that both of the heads are used simultaneously, machining on both sides, instead of as in the accurate finishing cut shown where only one cutter is used. The journal bosses are milled for the bearing caps without resetting the bed as shown in Fig. 4, the feed of the vertical spindle across the machine providing for this operation. In addition to the advantage that the bearings will be, as a result, machined absolutely square with the bed is the superior character of the surfaces obtained by this method of machining where the surfaces are small and with unsupported edges.

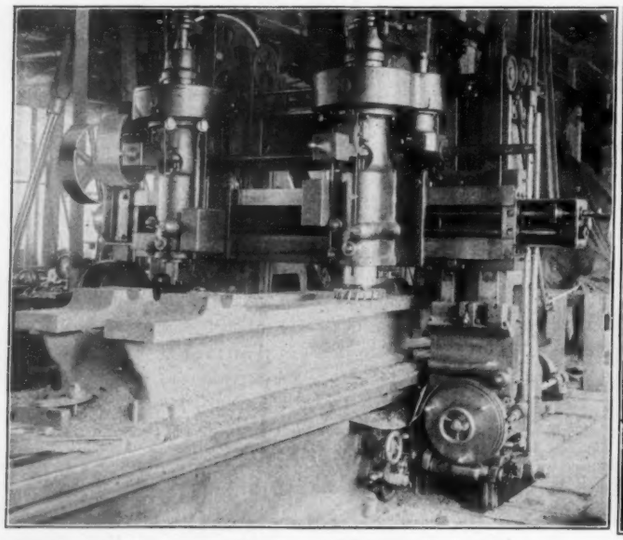


FIG. 3—PLANE SURFACE BEING MACHINED ON AN INGERSOLL MILLING MACHINE.

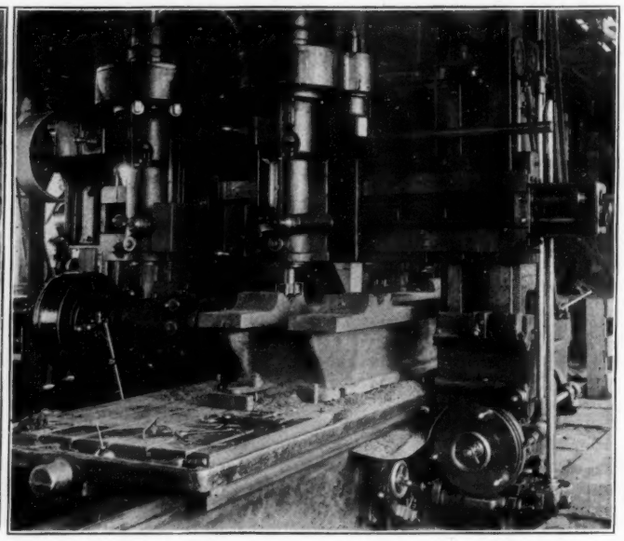


FIG. 4—MACHINING JOURNAL BOXES ON BULLDOZER.

Reaction Follows Steady Rise

Extensive breaks in New York stocks Saturday marked the culmination of the steady rise in the market which started about April 15. In the face of general developments, it had risen until a seemingly impossible price level had been reached. However, on Tuesday indications of the ending of the movement were strongly apparent, concluding Saturday with the break, when prices closed one to six points lower, the sharp break being without explanation in the news of the day. Wednesday a sharp reaction against the high prices was followed almost immediately by nearly complete recovery; on Thursday the market was active, but very irregular, on Friday being extremely nervous and irregular, its action mystifying old time traders. On Monday $8,350,000 gold was announced for export; Tuesday $3,600,000 more gold was engaged, followed by $4,000,000 on Wednesday, making a total of $33,850,000 on the present export movement. Final payments on account of the withdrawal of $45,000,000 of government deposits were made last week. Still, call money loans were easy at 1½ to 2 per cent all week. Time money rates were regarded as favorable. Foreign government banks made a strong showing Thursday, and foreign discounts were easier. The American Railway Association's report of idle cars was more favorable the past week, showing that on May 13 there were 405,434 idle cars, 8,983 more active cars than on April 29. Taking the week as a whole, people disassociated from Wall Street, but possessing knowledge of the facts of the general business situation, regard the reaction of the market last week entirely normal and proper. The bank statement attracted considerable attention. The actual loss of $4,800,000 of cash was regarded as really a favorable showing, since it occurred in the face of heavy gold withdrawals for export. Interior banks are still sending currency to New York in considerable quantity. While the decrease of surplus reserve for the week was more than $8,100,000, the total is still so large that the loss will have no appreciable effect upon the money market. The actual totals of clearing house banks for the week showed loans increased $11,209,500; specie decreased $5,370,200, deposits increased $15,657,600, the percentage of actual reserve increased 0.64 remaining at 29.24 per cent. The non-member banks and trust companies showed loans decreased $171,200; total deposits increased $11,099,200, the percentage of reserve increased 0.5 being 32.8. Conservative reports from the west from points usually accurate in forecasting, point to splendid crops, the harvesting having begun this soon in some sections. Total number of shares dealt in on the stock exchange during the week was 6,678,312, compared with 5,729,600 last week, and 4,443,400 for the corresponding week last year. Bonds, exclusive of government bonds sold, amounted to $23,528,000, compared with $23,442,000 last week, and $8,274,000 the corresponding week last year.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. May 25	Changes in Week	Date 1908 Ann. M't'g	Stock Outstanding	Dividend Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	9¾	+ ⅛	Sept. 3	19,820,000			
Allis-Chalmers pr	24½	− ⅜		16,150,000	7 cum	1¾ Q.	Feb., 1904
American Can	5½	− ⅛	Feb. 3	41,233,300			
Am. Can pr	54⅞	−1⅜		41,233,300	7 cum	1¾ Q.	April, 1908
Am. Car & Foundry	86¾	−1⅝	June 25	30,000,000		1 Q.	April, 1908
Am. Car & Fdy. pr	97	+ ½		30,000,000	7 n. c.	1¾ Q.	April, 1908
American Loc	48¾	−2⅛	Oct. 20	25,000,000	5	1¼ Q.	May, 1908
American Loc. pr	103	.....		25,000,000	7 cum	1¾ Q.	April, 1908
American Ship	45	.....	Oct. 14	7,600,000	4	1 Q.	June, 1908
American Ship pr	100	.....		7,900,000	7 n. c	1¾ Q.	April, 1908
Am. Steel Foundries	6	− ⅜	Oct. 6	15,810 000			
Am. Steel Foundries pr	34⅛	+ ⅛		17,240,000	6 cum	2½	Aug., 1904
Barney & Smith	50	.....	June 2	2,000,000	4	1 Q.	Sept., 1907
Barney & Smith pr	100	.....		2,500 000	8 cum	2 Q.	June, 1908
Bethlehem Steel	15	.....	April 7	14,862,000			
Bethlehem Steel pr	41¼	+ ⅛		14,908.000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	30⅜	−1	March 17	45,000,000*	6	1½ S. A.	Feb., 1908
Cambria Iron	45	.....		8,468,000*	4	2 S. A.	April, 1908
Chicago Pneumatic Tool	28	+2	Feb. 17	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	26½	−2¼	Oct. 19	34 235,500		3½	April, 1902
Crucible Steel	6	+ ½	Oct. 21	24,578 400			
Crucible Steel pr	42¼	+1¼		24,436,500	7 cum	1 Q.	Dec., 1907
Empire Steel	8	.....	Feb. 26	1,254,770			
Empire Steel pr	40	.....		2,500,000	6 cum	3 S. A.	Jan., 1907
Fay & Egan	100	.....	Feb. 18	1,000,000	6	1½ Q.	May, 1908
Fay & Egan pr	110	.....		1,000.000	7 cum	1¾ Q.	May, 1908
General Electric	136⅝	−3¼	May 12	65,167,400	8	2 Q.	April, 1908
Harbison-Walker	11	.....	Jan. 20	18,000,000		½	Oct., 1907
Harbison-Walker pr	67	+1		9.6"0,000	6 cum	1½ Q.	April. 1908
International Pump	22½	− ⅛	June 2	17,787,300		1	April, 1905
International Pump pr	72½	.....		13,835,000	6 cum	1½ Q.	May, 1908
Lackawanna Steel	35	+3	March 11	34,971,400			
Lake Sup. Corp	5½	− ⅛	Oct. 7	40,000,000			
New York Air Brake	69	−2½	June 18	8,012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	130	.....	Feb. 5	8,500,000	6	1½ Q.	June, 1908
Niles-Bement-Pond pr	100	.....		2,000,000	6 cum	1½ Q.	May. 1908
Otis Elevator Co	36	+1	March 16	6,156,600		1½ S. A.	April, 1908
Otis Elevator Co. pr	87	.....		5,449,500	6 n. c.	1½ Q.	April, 1908
Penn. Steel	60	−3	May 11	10,750 000			
Penn. Steel pr	96½	+ ½		16,5"0,400	7 n. c.	3½ S. A.	May, 1908
Pittsburg Coal Co	12⅛	−1⅛	Feb. 10	28,853,400			Nov., 1906
Pittsburg Coal Co. pr	45⅛	+1½		27,030,800	7 c.	1¾	April, 1905
Pressed Steel Car	27	−2¼	Feb. 19	12,500,000		3	Aug., 1904
Pressed Steel Car pr	84¾	.....		12,500,000	7 n. c.	1¾ Q.	May, 1908
Pullman	159	+ ½	Nov. 11	100 000,000	8	2 Q.	May, 1908
Railway Stl. Spring	37	− ⅛	March 5	13,500,000	4	2 S. A.	April, 1908
Railway Stl. Spring pr	91	+6		13,500,000	7 cum	1¾ Q.	June, 1908
Rep. Iron & Steel	17⅞	−2⅛	Oct. 21	27,191,000			
Rep. Iron & Steel pr	67	- 4¼		20,416,900	7 cum	1¾ Q.	April, 1908
Sloss-Sheffield	49¼	−2¾	March 11	10,000,000	5	1¼ Q.	Mar., 1908
Sloss-Sheffield pr	92	.....		6,700.0"0	7 n. c.	1¾ Q.	July, 1908
U. S. Pipe & Fdy	27¾	+ ⅛	June 24	12,500,000	4	1 Q.	Dec., 1907
U. S. Pipe & Fdy pr	75	− ⅛		12,500,000	7 n. c.	1¾ Q.	June, 1908
U. S. Steel	37¾	−1⅛	April 20	508,302,500	2 n. c.	½ Q.	June, 1908
U. S. Steel pr	100¼	−2¾		360,281,100	7 cum	1¾ Q.	June, 1908
U. S. Steel 5's	96	− ¼		463,798,000	5	5 A.	.....
Va. Iron, Coal & Coke	50	−6	Nov. 17	9,073 680			
Westinghouse Elec	50	−3	June 24	23 933,200*	10	2½ Q.	Oct., 1907
Westinghouse Air Brake	100	+ ½	Oct. 6	11,000,000*		2¼ Q.	April, 1908

Par value of shares, $100, except those starred (*), $50

Boston.—Butte Coalition closed 22¼, a net loss of 2⅜; Calumet & Hecla closed 675, a net gain of 5; Calumet & Arizona closed 109½, a net loss of 2; North Butte Mining closed 63, a net loss of 1¾; Quincy Mining closed 84, a net loss of 3½.

New York.—Amalgamated Copper closed 63⅞, a net loss of 4¼.

Financial Notes.

The Calumet & Hecla Co. declared a quarterly dividend of $5, payable June 25; the Sloss-Sheffield Steel & Iron Co. a quarterly dividend of 1 per cent on common stock, a reduction of ¼ of 1 per cent from the previous disbursement in March.

The buildings, land, equipment, etc., of the Leonard Stove & Range Co., Bowling Green, O., will be offered for sale at public auction June 30 at the company's office at 10 a. m. by D. W. Pugh, trustee in bankruptcy. The property is appraised at $40,000.

NEWS FROM MANY INDUSTRIES

New Buyers:—

G. O. Groll, G. A. Berg, O. W. Filkins, F. B. Higgie and James A. Davis have incorporated the Davis Clutch Co., Cleveland, with a capital of $15,000.

The Stafford Rolling Mill Co., Stafford, O., capitalized at $10,000, has these incorporators: J. McVay, J. T. Christy, John Zwick, C. G. Robinson and F. W. Murray.

Bartlett & Co., Inc., Camden, N. J., furnaces, heaters, etc.,, has been chartered with a capital of $100,000 by C. F. Bartlett, J. C. Bartlett and C. E. Bartlett, Philadelphia.

A charter has been granted to the Ideal Machine & Tool Co., Cincinnati, through Charles A. Wasmer, John Aspenleiter, Clara Aspenleiter, Elinora Wasmer and P. N. Simon. The capital stock is $100,000.

The Pencoyd Metal Co., has been organized at Philadelphia with a capital of $200,000, and incorporated by the following: J. J. Hirschfield, C. A. Rudolph and H. E. Heckler, all of Philadelphia.

The Chadbourne - Walker Machine Screw Co., Boston, has been incorporated by Edward J. Chadbourne, George S. Walter and Henry L. Weston, all of Boston. The capital stock of the new company is $4,000.

The National Nut & Bolt Lock Co., Cleveland, has been chartered with a capital of $40,000. F. W. Schwentner, James W. Newkirk, Fred I. Shoff, W. B. Dennow and G. A. Phillips are the incorporators.

The Cincinnati Gear Co., Cincinnati, has filed articles of incorporation with a capital of $11,000. Those interested are: Phillip Fosdick, John Christensen, Charles A. Stub, Loren J. Sorensen and John Clermont.

Articles of incorporation have been filed by the Hester Mfg. Co., Portland, Ore., to do foundry and machine shop work, with a capital of $50,000. The incorporators are: George C. Hester, Arthur L. Veazie and Ralph C. Coan.

The Houldsworth Foundry Co., Brooklyn, N. Y., to manufacture castings, etc., has been incorporated with $10,000 capital stock. Those interested in the new enterprise are: Charles Houldsworth, Thomasville, Ga.; Lottie Houldsworth, 131 Hancock street, and William O. Fitch, 278 Monroe street, both of Brooklyn.

A charter has been granted to the Scovil Iron & Steel Co., New York city, to manufacture iron and steel, bolts, spikes, rods, etc., with a capital of $10.000. The incorporators are: Percy A. Scovil, 230 West Tenth street; E. Medley Scovil, Times building; Charles L. Scovil, 52 William street, all of New York city.

Kenbluth & Rosenbluth, New York city, has been granted a charter to manufacture plumbers' and tinsmiths' supplies, etc., with a capital of $12,000. The incorporators are: Morris Krug, 994 Trinity avenue; William Klenert, 235 East Eighty-seventh street, and Isadore Rosenbluth, 1440 Lexington avenue, all of New York city.

The Lorain Iron & Steel Co., Lorain, O., capitalized at $10,000, was chartered by Sam Hample, A. Gordon, G. A. Resek, L. R. Clawson and C. F. Adams.

J. F. Doolittle, A. P. Fothergill, R. J. Venning, E. L. Venning and J. C. Kennard, with a capital of $30,000, have incorporated the Cleveland Steel Tool Co., Cleveland, O.

The Auburn Foundry Co., Auburn, Ind., has been incorporated with a capital of $15,000. The directors of the new company are Frank A. Borst, Fred W. Payne and Frank H. Nicolai.

Phillamac Rolling Mill Co., Cincinnati, was incorporated by the following, with a capital stock of $40,000: Nelson B. Cramer, W. R. Base, James N. Cole, Prescott Smith and William G. McLean.

New Construction:—

The Richmond Light, Heat & Power Co. is preparing to spend $60,000 in improving its plant at Richmond, Ind., because of the competition offered by the municipal plant.

The C. G. Garrigus Machine Co., Bristol, Conn., has had plans drawn for an additional factory building. It will be three stories, of brick, 37 x 75 feet.

The Great Northern Stove Co., Minneapolis, has let the contract for erecting buildings for its plant, including one 60 x 200 feet and three 50 x 50 feet, to cost $150,000.

The American Manganese Bronze Co., Philadelphia, has let a contract for a one-story brick and concrete foundry and storehouse, 70 x 120 feet, at 350 Rhawn street, to cost $20,000.

The Clinton Wire Cloth Co., Clinton, Mass., has secured options on two tracts of land near its present plant as preliminary steps toward the erection of an addition to its works.

A contract has been let by the Crompton & Knowles Loom Works, Worcester, Mass., for a foundry, machine shop and administration building and factory combined, on Grand street, at a cost of about $150,000.

Ground has been broken for the erection of a new factory for the Bay State Metal Wheel Co., East Templeton, Mass. It will be a three-story brick building, 128 x 60 feet.

Work has been started on the concrete foundations for the plant of the Valley Foundry Co., Canal Dover, O., newly incorporated. The building will be of brick and will be equipped with a traveling crane and the latest foundry facilities.

The foundation for the first building for the British-Canadian smelter at Chippewa, Ont., has been completed. The building will be of brick, 40 x 60 feet. The first furnace has been shipped from Toronto, and will be ready for operation about June 1.

Preliminary arrangements have been made for the removal of the plant of the Remington Arms Co., Ilion, N. Y., to Bridgeport, Conn. The Remington concern is controlled by the Union Metallic Cartridge Co., of Bridgeport. As soon as a new plant can be erected the Remington plant will be transferred.

The W. D. Forbes Co., New London, Conn., is erecting a new two-story addition, 50 x 180 feet, with wing 40 x 50 feet. This concern is now located at Hoboken, N. J., and in its new plant will manufacture light engines, steering gear, ice making machinery, electric lighting plants and blower engines. About 100 hands will be employed.

General Industrial.—

The Union Steel Screw Co., Cleveland, O., has filed notice of the reduction of its capital stock from $1,000,000 to $10 000.

The Fort Wayne Iron Store Co., Fort Wayne, Ind, has filed notice of an increase in its capital stock from $35,000 to $60,000.

The American Roll & Foundry Co., Canton, O., has filed an amendment to its articles of incorporation, increasing its capital from $200,000 to $300,000.

The first meeting of the creditors of the Darlington Foundry Co., Darlington, Pa., will be held at the office of Forest G. Moorhead, referee in bankruptcy at Beaver, Pa., May 30.

The United Iron Works, Pittsburg, Kas, recently sold a 13 x 32 first motion hoisting engine to the American Fuel & Development Co., Chilhowie, Mo., to be used in coal mines.

The Girard Foundry Co., Girard, Kas., has purchased additional equipment for the purpose of manufacturing

steel ranges, thus adding to the wider range of output of the foundry.

The Columbus Machine Co., Columbus, O., has filed articles of incorporation in Wisconsin to do business in that state, naming as its representative, John S. Stover, of Milwaukee.

James N. Rosenberg has been appointed receiver, on a creditor's petition in bankruptcy, for the H. & H. Mfg. Co., Baltimore, Md., copper, brass and nickle plated ware. The liabilities are $110,000, and the assets $150,000.

The Niles Car Mfg. Co., Niles, O., have received an order for the erection of two specially built cars from the Milwaukee Northern railroad to be duplicates of the cars built last year. An order for two extra cars was received at the same time from a Pittsburg interurban line.

The Scientific Instrument Co., recently incorporated, with offices at 1230-1245 Monon building, Chicago, and works at Evanston, Ill., advises that it is fully equipped with machinery for making optical and other scientific instruments which will be its product.

The Buchannon Machine Co., Charlotte, N. C., has been formed by W. F., B. L. and H. E. Buchannon, of that city, for the manufacture of machinery. The plant will be located in Charlotte, although the site has not yet been selected. The company will be capitalized at $125,000.

The North & Judd Mfg. Co., New Britain, Conn., advises that the increase in its capital stock recently noted was simply to capitalize that portion of the surplus which had been accumulating in the form of new buildings, betterments and new equipment for several years past. The increase simply capitalizes what was already represented in the way of investment.

A petition in bankruptcy has been filed against the Empire State Engineering Co., with offices at 149 Broadway, and works in both New York City and Rome, N. Y., by creditors. The company was incorporated in 1902, with a capital stock of $500,000, to manufacture electrical devices for auto truck propulsion. Slow collections, due to the recent business depression is assigned as the cause of the company becoming involved.

A. V. Bower, appointed by the United States court trustee of the insolvent Kemmerer Iron & Steel Co., Scranton, Pa., has begun three suits to recover an aggregate of $45,150.42, in an endeavor to collect the stock subscriptions. The company was originally organized and incorporated May 4, 1906, erected a plant in South Scranton the same year, and was declared bankrupt by the United States court Dec. 26, 1907.

The Wooster Machine Co., Wooster, O., which was recently organized, has taken over the Barrett Machine shop at Wooster. The shop will be continued along general machine repair lines and foundry work. In the fall it is designed to place on the market a new agricultural tool. Among the men interested in the new company are Edwin A. Porter, who will be manager of the new concern, Elmer L. Landes, John C. Schutz, Nicholas Amster and others.

The Union Iron Works, Decatur, Ill., manufacturer of corn shellers and cleaners, engines, boilers, etc., advises that the most damage in their recent fire was inflicted upon their pattern department, the total loss reaching about $5,000, amply covered by insurance. There was no part of the building destroyed that necessitated a shutdown of the plant, and within a few days repairs had been made and the plant is running along as usual.

James Gray, of Pine Orchard, Conn., who has been appointed receiver of the Branford Mfg. Co., New Haven, will continue conducting the business until present orders are filled, amounting to about $12,000 and then it is expected the concern will be reorganized. Inability to get needed loans is supposed to be responsible for the failure of the company, but the assets are sufficient to yield payment in full for creditors. The company was organized two years ago with $300,000 capital stock and had issued bonds for $125,000.

The Acme Steel Mfg. Co., Kansas City, Mo., consulting and contracting engineer has been incorporated by: President, Fred Johnson; vice president, L. G. Johnson, and secretary and treasurer, J. H. Fletcher. The company has a lease on the building in which it is now located, 2414 Broadway, and advises that it will probably not erect a new factory inside of a year or 18 months, its present equipment being practically complete. The company proposes to do light bridge work and handle iron and steel building materials and specialties.

The Manitowoc Foundry Co., Manitowoc, Wis., has been awarded the contract for supplying castings and iron supplies by the Milwaukee Central Railway Co. for its rolling stock, docks and mines. The Manitowoc Foundry Co., of which S. G. Smith is president and manager, has been established at Manitowoc only a few months. President Smith, however, had been engaged in the business for years in Chicago and other cities. The company has just completed its plant, one of the best equipped in the northwest.

Receivers of the Susquehanna Iron & Steel Co., Columbia, Pa., who recently paid their creditors 50 per cent of their claims, now have sufficient cash on hand to pay the remaining 50 per cent. The balance amounts to approximately $200,000, but is tied up awaiting the confirmation of the auditor's report and permission of the court. It now looks as if the old creditors, whose claims aggregating $70,000 are based on materials sold to the company prior to the receivership, stand a good chance of receiving at least 25 per cent.

E. L. Essley and J. R. McDonald have organized the E. L. Essley Machinery Co., with its main store at 57 West Washington street, Chicago, and branch office at Milwaukee. The Chicago store will be in charge of Mr. Essley and the Milwaukee office in charge of Mr. McDonald. The company proposes to buy and sell both new and second hand iron and brass working machinery and will carry a full line at its Chicago store. Both members have had long experience in the machine tool business, extending over a period of 18 years, and were formerly with the McDowell-Stocker Co.

The Empire Motor & Machine Co., Bainbridge, N. Y., which was recently incorporated with a capital stock of $10,000, will manufacture and sell shaper guards and other machinery. The directors of the company are Charles E. Marshall, Lewis W. Kuisker, Mary L. Kuisker, Anna E. Marshall, Bainbridge; and James M. Chaffee, of Windsor, N. Y.

The Colorado Machinery & Supply Co., Denver, Colo., which was recently incorporated with a capital of $100,000, includes the following on its directorate: George Eastom, formerly president of the Midland Park Lumber Co.; Benjamin Grimes, manager of the Denver Metal Co., and R. M. Farrar, formerly auditor of the Morse Bros. Machinery & Supply Co.

The Great Northern Stove Co., recently incorporated to locate at Minneapolis, is one of the large stove manufacturing concerns in the United States. The company is made up of foundries from Geneva, N. Y., La-Crosse, Wis., St. Louis, Mo., and proposes to erect at Minneapolis manufacturing buildings which will cost in the neighborhood of $150,000.

The Luzerne Mfg. Co. and the Frantz Engine Co. have consolidated their plants under the name of the Luzerne Foundry & Machine Co., Luzerne, Pa. The Frantz company's plant, which has been located at Cherryville, Pa., will be moved to Luzerne, and it is planned that the working force of the new concern will be about that of the two plants as now constituted.

The Detroit Steel Cooperage Co., Detroit, Mich., has been reorganized by the election of the following directors and officers: President, Nathan G. Williams; vice president, Orla B. Taylor; treasurer, Robert Ranlett; secretary, W. L. Fisk; Henry C. Weideman, William Barry, DeWitt H. Taylor. Mr. Weideman entered into a contract with the new officers to manage the plant for five years.

Holroyd & Co., Waterford, N. Y., advise regarding their recent incorporation that no changes are anticipated in the character of the line manufactured. The company has been making taps, dies, screw plates, stocks and dies under a copartnership, since 1847, and simply changed to a stock company. The company has recently installed a number of tools and improved the plant.

The Trenton Iron Co., Trenton, N. J., has been awarded a contract by the board of public works of Los Angeles, Cal., for an 8,000-foot wire rope tramway to be used in conveying clay for the aqueduct cement plant, the price being $12,700. The tramway will involve a double rope system extending from the cement plant to the bottom of Salt Lake, where the clay is obtained for making the cement.

The Aylmer Pump & Scale Co., Ltd., Aylmer, Ont., which was recently incorporated, announces that no material changes are proposed in the building, and the company will carry on the business similar to that of its predecessor, namely, manufacturing and dealing in iron pumps, scales, elevators, trucks, etc. The officers are: President, S. G. Chapman; secretary and manager, N. Hamilton.

Federal Judge Cross, at Trenton, N. J., has allowed the receiver of the Atha Steel Castings Co., of Newark, to become party to the movement by the merchandise creditors committee of the Westinghouse Electric & Mfg. Co., looking to the reorganization of the Westinghouse company. As such creditor, the receiver is permitted to accept stock in the proposed reorganization company in lieu of a claim of $61,000.

The Western Foundry & Machine Co., Ogden, Utah, which was recently incorporated with a capital of $50,000, has chosen these officers and directors: President, John Pingree; vice president, R. B. Porter; secretary, treasurer and manager, J. B. Dorn; A. T. Bee, M. S. Browning, H. H. Rolapp and Adam Patterson. The company's plant is located at Twenty-third street and Lincoln avenue, Ogden. The company will manufacture a general line of machinery, as well as conducting a general foundry business.

The total quantity of coal exported by the United Kingdom in 1907 amounted to 63,601,000 long tons, an increase of more than 8,000,000 tons, or 14 per cent over the shipments of 1906.

Allis-Chalmers Co., Milwaukee, is issuing a small leaflet in which is contained explanations and full directions for setting the valves of Reynolds heavy duty and Reliance Corliss engines.

Centrifugal dust collectors for extracting dust from furnace gases are being installed at the Zenith furnace, Duluth, Minn., and the Wharton furnaces, Wharton, N. J. These dust collectors are designed by Frank C. Roberts & Co., of Philadelphia, and are similar to those which have proved successful at a number of eastern furnaces.

Furnace operations in the Shenango and Mahoning valleys show seven merchant stacks out of a possible 19 in blast at the present time. These are Youngstown Steel and Shenango No. 3 on Bessemer, Dover and Struthers on basic, Girard and Andrews and Hitchcock on foundry and Steward on low phosphorus. Bessemer and basic stocks in the valleys are not increasing, but are really slowly reduced. The latest estimate is that they are now under 55,000 tons.

Tri-City Foundry Foremen's Association was recently organized at Rock Island, Ill., by the election of these officers: President, J. F. Webb, Davenport, Ia.; vice president, William McClellan, Moline, Ill.; secretary-treasurer, H. A. Becker, Moline. The meetings of the association are of an educational character and the next will be held at Moline. A paper on cupola practice which John Kittilsen, of the Moline Scale Co., read at the Rock Island meeting will be further discussed at the next gathering.

Trade Notes:—

H. L. Wells, formerly advertising writer for the Allis-Chalmers Co., Milwaukee, more recently publicity manager of the Power & Mining Machinery Co., Milwaukee, has opened an office in Chicago at No. 1205 Monadnock block, for the general practice of technical or trade journal advertising, and is now ready to undertake publicity work of any kind for non-competing manufacturers of machinery and allied products.

Fires:—

The chipping shed and pattern store room of the City Foundry, Cleveland, were damaged by fire May 22. The loss is estimated at $1,000.

The power house and paper mill of the Lake Superior Corporation, at Sault Ste. Marie, Ont., were damaged to the amount of about $75,000 May 18. Fully insured.

A small fire in the Rockdale, Ill., plant of the American Steel & Wire Co., on May 15, was extinguished by the company's own department with slight loss.

The machine, blacksmith and boiler shops of the Fort Worth & Denver railroad, at Childress, Tex., were seriously damaged by fire May 16. The loss will reach about $150,000.

The boiler and machine shops of the Standard Oil Co., at Cleveland, were seriously damaged by fire May 23.

The stock in the warehouse of the Republic Belting & Supply Co., Cleveland, was damaged by fire May 23, the loss being estimated at $10,000, covered by insurance.

BOOK REVIEWS.

Engineering Index Annual for 1907. New York. *The Engineering Magazine.* 7 x 9½ inches. 435 pages. Cloth. Supplied by THE IRON TRADE REVIEW for $2.

This book is a continuance of the *Engineering Index,* which has been published by the *Engineering Magazine* for a number of years. It is compiled from the *Engineering Index* published by that magazine monthly during 1907. In this volume, as in the annual for 1907, the same classification is applied which is used monthly in the magazine. The classification has been slightly modified and clarified, and an effort has been made to standardize catch words and to bring all references of a single subject together. Cross referencing has been introduced on a much broader scale than in the preceding annual. The book maintains the same high standard that has been attained by the earlier editions, being, if anything, an improvement upon them.

The Birmingham Coal & Iron Co. banked its No. 1 furnace on April 27 to make connection to its new No. 2 furnace. No. 1 furnace will be banked indefinitely. Furnace No. 2 was lighted May 2.